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Abstracts

(An explanation of the classification used in the Digest was published in the January (1949) issue (Vol. 6, No. 1) on the page facing the Index to Authors)

[1]

FIBERS A

Natural fibers A 1

Australian jute substitute plant. Eric Hardy. *Jute Bull. 12,* 28-9 (Apr. 1949).

See TTD: *6,* 342.

Characteristics of cotton and their relationship to certain properties of yarn. de Meulemeester. *Bull. de l'Institut Textile No. 14,* 37-67 (Oct. 1949); *in French.*

In a lecture, a critical exposition is given of the methods of measuring the length, strength and fineness of cotton. The work done at the U.S.D.A. and Ghent University is discussed and compared. The second part is devoted to bringing out the relationship between the properties of the raw cotton and the qualities of yarn.

Chemical study of some varieties of flax. Maurice Van Overbeke & Geo. Mazingue. *Bull. de l'Institut Textile No. 13,* 23-40 (Aug. 1949); *in French.*

This paper gives the results obtained in studying the variation in chemical composition along a blade of fully matured flax straw (Concurrent variety grown in Flanders in 1946) dried naturally; in studying the influence of the age of the plant on its chemical composition; and in the comparative study of the chemical composition of 4 varieties of flax grown in 1947, i.e., Concurrent, Formosa, Liral Prince and Rembrandt.

Histological study of some varieties of flax. J. Szymanek. *Bull. de l'Institut Textile No. 13,* 15-22 (June 1949); *No. 13,* 9-17 (Aug. 1949); *in French.*

This study was concerned with histological and histochemical observations of several varieties of flax, part of the 1947 crop. The characteristics of the fibers obtained by extraction in water and in caustic soda and in caustic soda at 5%, washing

[2]

in both cases being half in hard water and half in acidified water, are described.

Improved fiber decorticator and method of using same. Cardis. *J. Sci. Ind. Research (India) 8B* (Aug. 1949).

Comprising 2 semicircular arcs terminating in 2 rectangular pieces, one of the rectangular pieces having extensions at its end.

Kenaf—III. R. H. Kirby. *Fibres 10,* 399-401 (Nov. 1949).

This, the third of a series of articles, is a discussion of the general aspects of the commercial production of Kenaf, its production in South Africa and its properties. Kenaf has never been developed on a large scale, one reason being that as a competitor of jute it cannot be sold cheaply enough. Owing to a political dispute with India and complete cutting off of jute supplies, the Union of South Africa is planting Kenaf (about 2,500 acres) and setting up retting plants. Insofar as properties are concerned, Kenaf fibers are relatively light colored and have a length of 3-4 mm, a moisture content varying between 8.2-12.5% depending on location. Ash content varies from 1.2-10.7% and cellulose content between 74.3-77.8%. (See TTD: *6,* 900 for Parts I and II.)

Process for reducing the feltability of wool. The Bradford Dyers' Assn. Ltd. Indian P. 41 071 (through *J. Sci. Ind. Research (India)*).

Progressive passing of the material through a chamber, continuously feeding halogen gas into the chamber and continuously withdrawing water vapor therefrom.

SILK PRODUCTION AND WEAVING IN INDIA. C. C. Ghosh. Council of Scientific & Industrial Research [India], Monograph, 1949. Price: Rs8.

[This] is a comprehensive treatise dealing in detail [with] all aspects of Indian silk industry as it exists today. The subject-matter is distributed

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over 11 parts, each part giving a brief but a complete account of the subject under its head. The monograph contains 2 important appendices, one dealing with how Japan developed her silk industry and the second refers to lines of research in sericulture, both of which are of special interest to research workers and may be read with much profit.—*J. Sci. Ind. Research (India).*

Artificial fibers A 2

Cottonseed protein fiber. Jett C. Arthur, Jr. & Hugh G. Many. *Textile Research J. 19,* 605-08 (Oct. 1949).

The preparation of fibers from cottonseed protein is described. The fibers have a dry strength of 0.6 to 0.7 g per denier, a wet strength of 0.2 to 0.3 g per denier, are yellow-to-orange color and have a soft hand.

Developments in rayons and synthetic fibers. Anon. *Silk & Rayon 23,* 1356-70 (Oct. 1949).

This is a summary of recent patents and investigations in the rayon and synthetic fiber industry. Among the developments described are: 1) a process for the continuous spinning of alginate rayon by passing a 7% solution of sodium alginate through spinnerets into a coagulating liquor consisting of 2.5% calcium chloride, washing and impregnating with a 5% solution of cetyl pyridinium bromide; 2) a method for cutting the time required to carry out cuprammonium fluidity determination from 20 hours to ½ hour; 3) dyeing glass fibers by pretreatment with condensation products of formaldehyde and an acyclic compound such as dicyandiamide; 4) a method of setting highly twisted yarn by exposure to a high frequency field; and 5) a process for dyeing nylon with vats by swelling the nylon and dyeing with the vat in the oxidized instead of the leuco form.

Filament guide. Malcolm H. Barnes & Edw. L. McCandless (to The Linde Air Products Co.). USP 2 485 553, Oct. 25, 1949.

A filament guide comprises a unicrystalline body of material selected from the group consisting of corundum and spinel, the body having a glossy scratch-free filament contacting surface substantially identical with the surface produced by intensely heating such a body.

New process for controlling the swelling of cellulose hydrate material. Vereinigte Glanzstoff-Fabriken A. G. PB 74 235t5, 1949. 27 p. tables. *Bibl. of Technical Reports 12,* 131 (Oct. 1949). Price $27.50. (Available from

Research Information Service, 509 5th Ave., New York 17, N. Y.)

Process for fastening nylon to nylon. Imperial Chemical Industries. Indian P. 39 014 (through *J. Sci. Ind. Research (India)*).

Fastening of nylon to nylon by an adhesive made from a solution of nylon in a coal-tar derivative.

Properties of the man-made fibers. A. J. Hall. *Brit. Rayon & Silk 26,* 55-6, 179 (Oct. 1949).

The early development of artificial fibers is briefly reviewed; man-made fibers are compared to the natural fibers generally and synthetic fibers are discussed with reference to: wet strength, extensibility and elasticity, uniformity of properties, softness and draping qualities, control of luster, warmth of handle, dyeing considerations and wear resistance.

Recent developments in synthetic fibers. A. S. Carpenter. *J. Soc. Dyers Colourists 65,* 469-78 (Sept. 1949).

The history, chemical, and physical properties of a number of synthetic fibers are given. The plastics from which these fibers are derived are discussed in several categories which include: 1) condensation polymers, 2) addition polymers, and 3) modified naturally occurring substances of high molecular weight. Under condensation polymers such products as Terylene, and the polyurethanes are discussed. Under addition polymers such products as Vinyon N, Orlon, vinylidene copolymers, polyethylene, are described. In the third group, products such as protein and rubber fibers are discussed. Crystallinity, molecular orientation, and the molecular architecture of the above fibers are discussed in some detail.

YARN PRODUCTION B

Construction of yarn reel. H. L. Burbridge. Brit. P. 589 632. *Textile Mfr. 74,* 195 (Apr. 1948).

Describes reels, of the kind having a hub on which there are separately attached end flanges formed of fiber-reinforced moulded synthetic resin. The hub of the reel is a metal tube, the ends of which are externally screw-threaded, and each end flange is formed during moulding with an annular depression having a coacting internal screw-thread in which the respective hub end is received. The screw-threads on the hub ends are masked by the end flanges.

Electrostatic charges in processing on cotton machinery. H. Nuding. *Textil-Praxis 4,* 364-67 (Aug. 1949); *in German.*

Electrostatic charges were found to be due chiefly to the friction between fibers. The degree of charge depends on humidity, pH value, luster, and the machinery. Electrostatic charges are particularly undesirable in carding; suggestions are given for avoiding their generation, or grounding. In the latter case the lap is grounded, not the machine. Measurements of potentials and graphs showing the relations between adhesion, humidity and machine capacity and potential are given.

Saco-Lowell's worsted spinning system. Anon. *Can. Textile J. 66,* 42-4 (Oct. 11, 1949).

This is a description of machinery and equipment designed to produce worsted yarns from wool top in 5 stages. For wools up to 6 in., the sequence of operations is 1) pin drafting, 2) first drawing, 3) second drawing, 4) roving, and 5) spinning. For wools longer than 6 in. the drawing frames are eliminated and 3 passages through the pin drafter are used followed by roving and spinning.

Static in textile processing. D. J. Lehmicke. *Am. Dyestuff Reptr. 38,* 853-55, 862 (Nov. 28, 1949).

A discussion of the causes, effect and remedies of static electricity and the difficulties it presents in textile processing particularly with respect to cellulose derivatives and synthetic fibers of low moisture absorption. Accompanying tables show the electrostatic series of fibers, electrostatic voltages of various fibers against synthetic rubber and the order of electrostatic susceptibility against synthetic rubber.

Fiber preparation B 1

Textile mills increasing synthetic fiber blending. John H. Senior. *Rayon & Syn. Tex. 30,* 64-7 (Sept. 1949).

The machines which have been developed for the blending of synthetic fibers are discussed by following the process from the bale breaker to the preliminary carding unit.

Carding and combing B 2

Card clothing. Edwin A. Snape, Jr. USP 2 488 442, Nov. 15, 1949.

Card clothing including a backing comprising a plurality of layers of woven fabric cemented together, a layer of wool felt cemented to one outer layer of fabric, and a sheet of flexible, plastic material cemented to the outer surface of the wool felt layer, the plastic material being formed of a

resinous polymer selected from a group consisting of polyvinyl chloride and copolymers of vinyl chloride and vinyl acetate, plasticized with a suitable plasticizer.

New woolen card raises Forstmann production. Gustav Zellnik. *Textile World 99,* 114-17, 151 (Oct. 1949).

An 80 in. woolen card, built by the Newport News Shipbuilding and Drydock Company, is producing at a rate 40% higher than other cards the same width. It has 48¾ in. diameter doffers, and cylinder speeds of 128 rpm. The 3 cylinders are placed abreast of each other, and are fed in such a manner that the fibers are carded from every direction. It will produce 200 good ends for fine yarns and 144 for coarse counts. The motors are fan-cooled and are connected so that their revolutions are synchronized.

Nomograph gives nep count per unit weight. J. F. Bogdan. *Textile World 99,* 128-29 (Oct. 1949).

Nep counts on cards must be related to something besides square inches of web if they are to be comparable from mill to mill. The nomograph developed (for a 40" card) makes it easy to convert neps per 100 square inches to neps per 100 yards of 22s yarn or neps per gram if the sliver weight in grains per yard is known. The formulas this chart is based on are given. A reproduction of the nomograph is included.

Process for improving the carding effect of carding cylinders. Augustin M. Castell (to C. A. Constant Card). USP 2 481 002, Sept. 6, 1949.

A process for improving the carding effect of carding cylinders comprises the step of continuously applying suction to the web of fibers being carded on the carding cylinder, such suction being applied progressively back and forth across the surface of the cylinder as the cylinder rotates, the suction being sufficient only to raise the fibers from the base of the teeth to the tips thereof, without complete removal and carrying away of such fibers, whereby the major portion of the fibers remains on the carding cylinder and travels along therewith for completion of the carding operation, and whereby the clothing of the cylinder is kept continuously clear for long periods of time.

Processing of worsted-type yarns using uncombed wools. N. A. Whiffen. *Textile J. Australia 24,* 584, 586, 588, 590-92, 594, 599 (Sept. 1949).

A series of experiments was conducted to deter-

mine the feasibility of using conventional cotton cards to process wool; the tests showed conclusively that 100% wool cannot be processed without considerable damage on conventional cotton cards. The results also showed that the conventional wool comb is very essential in the processing of worsted yarns. Other data obtained indicated that the principle of the cotton card could be applied to wool, but the changes necessary in design would preclude any advantages being obtained. The conclusions were reached that fiber length and distribution do not have a marked effect on strength and extension in yarns of the type studied. The effect of a smooth, uniform length fiber on the ease of processing was noted and is undoubtedly due to the dilution of the crimp effect. A further conclusion was that properly lubricated rings on the ring-spinning frame for wool are essential.

Drafting and roving — B 3

Drafting problems. I-IV. Berthold Kirschner. *Textil-Praxis 4*, 16-17 (Jan. 1949); 57-9 (Feb. 1949); 159-62 (Apr. 1949); 208-10 (May 1949); *in German.*

This series of 4 articles discusses a number of drafting problems in question and answer form. Numerous formulae, diagrams and tables are given.

High draft speed frame. Anon. *Fibres 10*, 413-15 (Nov. 1949).

A new high speed draft frame having the following features is described: 1) radical changes in the control of individual fibers and control of twist, 2) 2-zone drafting arrangement (4 lines of rollers divided into 2 zones and combined with a fiber control unit), 3) introduction of a patent guide situated between zone rollers, 4) a new type of control unit, 5) a new flyer to achieve safer roving without breaking, and 6) inclusion of a measuring device to measure a predetermined number of yards and thus stop the machine.

New drafting system in worsted spinning. J. S. Barke. *Indian Textile J. 59*, 1038-39, 1041 (Sept. 1949).

A new drafting system for worsted spinning which is claimed to eliminate ⅔ of the labor and machinery normally used in preparatory processes is discussed. The apparatus, known as the Ambler Superdraft System, permits drafts ranging from 20-200 when spinning worsted on orthodox cap, ring and flyer frames. This system can be easily

adapted to existing machines, with a further advantage that the production of the frame itself is increased when the new system is used because the heavier slubbing or roving permits the use of a much larger creel on the frame.

Textle fiber drafting roll. Edw. J. Courtney. USP 2 488 764, Nov. 22, 1949.

A textile fiber drafting roll includes a hollow cylindrical roll cover which has an outer compressive fiber working facing layer and an inner substantially incompressible reinforcing layer which is axially coextensive with the outer facing layer. The roller has clamping end disks comprising a flange which includes means for engaging the cover. The present invention is a modification and improvement of the roll disclosed in USP 2 417 239, Mar. 11, 1947 (See TTD: 4, 161).

Twisting means. W. Rowedder. USP 2 481 538, Sept. 13, 1949.

In the present invention, the delivery means is also rotated and the twist imparted between the delivery and the take up means. Thus according to this invention the delivery means is rotated at the same rate and in the same direction as the roving. Consequently, there is relatively no problem of tension caused by the diminution in the diameter of the roving core or spool. By passing the thread from the roving through a sheave or opening and thence to the delivery means, the need for spindles as guides to lead the thread to the delivery means is eliminated along with the possibility of thread breakage resulting therefrom, and necessary rethreading.

Spinning — B 4

Automatic doffing. Anon. *Fibres 10*, 412 (Nov. 1949).

What is claimed as the first automatic doffing device for ring spinning frames producing any type of yarn is described. These autodoffers (made in either right or left hand models) are fitted to doff 12 spindles at one time on a frame with a 2½ in. ring gauge; however, the machine can be fitted for different gauges and lifts very simply. The cycle of movements in doffing 12 spindles and replacing with empty bobbins takes 7 seconds.

Bobbin clutch. Richard C. Hare (to Whitin Machine Works). USP 2 487 544, Nov. 8, 1949.

In a spindle having a blade and a driving whirl mounted thereon, a bobbin clutch comprising a one-piece bushing having a head fixed on the blade and a continuous annular bottom flange positioned

adjacent the upper part of the driving whirl but free therefrom and having a slotted body portion connecting the head and flange, and a separate spring finger assembly comprising an annular bottom flange enclosed by the bottom flange of the bushing and a plurality of spring fingers extending freely upward from the bottom flange and positioned in the slots of the body portion, and the lower inner corner portion the bottom bushing flange being upwardly displaced to secure the bushing and the spring finger assembly together to form a permanent unit and to prevent longitudinal displacement of the spring fingers relative to the bushing.

Causes of ring spinning frame thread breaks. Otto Johannsen. *Textil-Praxis 4*, 165 (Apr. 1949); *in German.*

This is a short discussion of the author's work on ring spinning. A basic law of thread breaks is advanced which states that they occur more frequently at the point than at the base of the bobbin. The traveler is held to reduce the centrifugal force and is thus responsible for thread breaks. (See also *Textil-Praxis* 1948, *10*, 295.)

Control device for continuous spinning and twisting frames. Mathieu H. H. M. G. Fischer (to Ateliers Houget, S. A. Vervietoise pour la Construction de Machines). USP 2 489 021, Nov. 22, 1949.

A continuous spinning frame has an arrangement for controlling and adjusting twist which comprises a variable speed governing device for controlling the feed roller and a similar device for controlling the spindle drum. The speed governing devices are controlled so that the driven shaft of one of them rotates at maximum speed, while the driven shaft of the other rotates at minimum speed.

Effect of twist on strength of rayon yarns. J. Deschacht. *Rayonne 4*, 31, 33, 35 (Nov. 1948); *in French.*

Descriptions are given of machines and machine settings used in the spinning of a 32-den. rayon yarn from a 1.5 den/38 mm rayon staple in the study of the best twist for maximum strength. Highest strength was obtained with a twist factor of about 3. Variations in twist should be avoided as the dye affinity of a yarn varies with the twist.

High speed winding demands care in package preparation. Anon. *Am. Wool Cotton Reptr. 63*, 35, 49 (Nov. 24, 1949).

It is most essential in spinning and twisting yarn

that attention be given to packages for high speed winding so that full efficiency of the winder may be obtained. To produce packages suitable for high speed winding the winding pattern and the spacing of yarn coils on the bobbin must be carefully controlled. The proper size lay gear must be chosen in relation to the type and number of yarn being spun or twisted.

Kinematics of the ring traveler. W. E. Baltz. *Textil-Praxis 4*, 162-65 (Apr. 1949); *in German.*

Previous work done on ring spinning is considered, and the theory is advanced that uneven wear of the track causes the traveler to deviate from its mean position on the ring, and that the resulting vibrations are higher than the number of worn places traversed during one revolution of the traveler. The problem is investigated mathematically and the relation between number of faulty places and amplitude of distortion is considered. A higher amplification occurs with lower numbers of faults. A new approach to the study of thread breaks is suggested. High-speed motion pictures may yield new information on the traveler motion.

Method of making long draft aprons. Bruce R. Billmeyer (to Armstrong Cork Co.). USP 2 482 702, Sept. 20, 1949.

This invention relates to a method of making long draft aprons for use in fiber drawing in which the steps comprise winding a layer of twine helically about a forming surface to form a cylindrical body and securing a wearing surface of synthetic rubber composition to the body. Preferably, the twine comprises a single layer wound and held in the form of a helix in which adjoining convolutions are disposed in abutting relationship and in which the angles of inclination of the convolutons are within the range of 80°-90° from a line drawn axially through the tube and, preferably, are as close as possible to 90°.

Mule anti-splash device. R. Fairclough, N. Miller & W. M. Balshaw. Brit. P. 589 428. *Textile Mfr. 74*, 194 (Apr. 1948).

Describes an oil anti-splash device for the spindles of spinning mules. The device comprises a strip of felt having a hole in it for the passage of each spindle, arranged along the top surface of the bolster plate extending over a number of spindles. A cover plate, also having a hole for the passage of each spindle, of channel shape is arranged above the felt with its flanges resting on it. A recess is formed opposite to each spindle in one of the flanges for the passage of oil from

the usual oil groove in the bolster plate.

Mule wiping down motion. J. Marshall, C. Marshall & Sons Ltd. Brit. P. 589 851. *Textile Mfr. 74*, 195 (Apr. 1948).

Describes a wiping down motion for a spinning mule in which the actuating rope passes over a grooved pulley against which it is pressed by a spring, the pulley being journaled in slots in the front or rear walls of the casing. A spike is arranged to enter the groove in the pulley below the arc engaged by the rope whereby any fibers tending to accumulate in the groove will be removed automatically.

Quality of single yarn in relation to folded [plied] yarns. Harold Ankers. *Can. Textile J. 66*, 52-4 (Oct. 11, 1949).

Putting extra twist in short staple cotton at the mule to increase strength causes winding snicks or snarls. Machine processing may cause additional faults in single yarns which persist when the yarn is folded. These include neps, slubs, variable and soft twist and faulty cop build. Some of these faults may be extended and additional faults produced by the carelessness and inattention of operating personnel.

Retaining means for spindle adapters. John J. Pichette. USP 2 488 879, Nov. 22, 1949.

A spindle is provided with an adapter in the form of a sheath which is provided with longitudinal grooves. Spring fingers on the spindle are received and held in the adapter grooves.

Spindle. Karl A. Gelpke. USP 2 485 093, Oct. 18, 1949.

A spindle for use in spinning and twister frames has a steel running gear, an empty tube disposed coaxially and end-to-end with it, and a body of metal relatively lighter than steel cast about the running gear and tube and forming the blade, acorn, and whorl of the spindle.

Spinning apron. Henry M. Bacon & Jos. Rockoff (to The Dayton Rubber Co.). USP 2 484 810, Oct. 18, 1949.

A spinning apron for long draft systems consists of an inner wear-resistant roller contacting layer of tough black rubber composition having carbon black incorporated in it as a reinforcing material, an outer fiber contacting layer of a soft rubber composition free from carbon black and relatively softer than the inner layer, and a layer of nylon cords parallelly arranged along the longitudinal axis of the apron embedded between the inner and outer layers of the apron.

Spinning and twisting apparatus. I. Frenkel. Brit. P. 589 227. *Textile Mfr. 74*, 193 (Apr. 1948).

Describes a spinning and twisting device comprising a ring rotating with the bobbin and which guides the yarn coming from the delivery rollers. The yarn bears on the layers of yarn already wound before being wound on the bobbin, and the yarn also bears frictionally on the surface of the ring between spaced guides located on the ring before bearing on the layers already wound and before being wound on the bobbin.

Spinning spindle. Joaquim Montané. USP 2 481 681, Sept. 13, 1949.

This invention consists in supporting the rotating spindle at both ends, thereby producing a mean length of the overtopping part much longer than usual, higher rotating velocity, elimination of vibrations, a light turning body, and easily replaceable bearings and shafts. A hollow column or tubular shaft, which extends the length of the spindle, is provided for keeping the turning body of the spinning spindle in its working position; the tubular shaft also serves as a duct for the lubrication of the shaft and spindle bearings.

Stop motion for spinning frames. D. Fraser & Sons Ltd. & G. S. Fraser. Brit. P. 589 884. *Textile Mfr. 74*, 84 (Apr. 1948).

Describes an improved stop motion mechanism for spinning frames.

Winding and spooling B 5

Core covering device. Edw. G. Egge (to U. S. Rubber Co.). USP 2 488 970, Nov. 22, 1949.

A core covering device capable of operating at very high speed, comprising in combination a hollow spindle having means for rotating it at high speed and adapted to support a package of core covering yarn, a yarn guiding and tensioning cap rotatably supported by a ball bearing at the top of the spindle to turn freely independently of the spindle and having a central core-receiving passage and a side passage communicating therewith and through which the core covering yarn of the package passes to be wound upon a core, and the cap being sufficiently small in diameter to permit the package to be placed on and removed from the spindle without disturbing the cap.

Core covering spindle adapter. Edw. G. Egge (to U. S. Rubber Co.). USP 2 488 971, Nov. 22, 1949.

In combination with a core covering device having a hollow spindle adapted to support a package of

covering yarn and rotate it about a core, an adapter comprising a thick disk having means for fitting the spindle and the upper end of the package to center the package upon the spindle, the disk having a deep annular recess in its upper face, a traveler ring of smaller diameter than the disk mounted in the recess to lie below the upper face, and a traveler for the covering yarn that travels upon the ring in a path that lies below the upper face of the disk and inwardly from its outer periphery.

Development of uptwisters for filamentous synthetic yarns. [Part 2]. R. A. Hargreaves. *Rayon & Syn. Tex. 30,* 63-6 (Nov. 1949).

Part I of this 2-part series appeared in the Oct. 1949 issue (See TTD: *6,* 835). Part II is a description of the features of the Whitin Model RF5 uptwister.

Magazine creel. Thos. F. Suggs (to Cocker Machine & Foundry Co.). USP 2 483 160, Sept. 27, 1949.

In a creel including horizontally swivelable members having forked ends for the support of thread and yarn packages or cakes, the combination of a tiltable carrier device including a claw and spaced projections coactive with the forked ends of the swivelable member, and the claw and projections respectively limiting tilting movement of the carrier in opposed directions with respect to the vertical.

Method of and apparatus for twisting yarn. Henry C. Uhlig (to Howe Machinery Co., Inc.). USP 2 487 837, Nov. 15, 1949.

Machine for cabling yarns delivered from multiple twist uptwisters to a common take-up of the multiple twist type.

Package density of winding frames. Brit. Celanese Ltd. Brit. P. 589 678. *Textile Mfr. 74,* 195 (Apr. 1948).

Describes a winding machine which comprises a flexible connection extending from a point on the traverse in the neighborhood of the yarn guide, turning through an angle round a guide separate from the traverse, and returning to the counterweight on the traverse. The connection is maintained under tension so as to steady the pressure of the guide on the surface of the package. In this way a tendency for the guide to jump during winding may be inhibited.

Pneumatic means for spinning frames. Jos. W. Nims, Sr. USP 2 487 361, Nov. 8, 1949.

This invention provides individual suction means arranged close to each bobbin, and adjustable to follow the roving or yarn as the size of the wound roving decreases; it provides means for collecting and holding the dirt or lint which has been removed from the roving or yarn. A vacuum tank is the source of suction and also serves as a support for the skewers and the pipes carrying the suction nozzle; the tank is mounted upon the top of the spinning frame.

Quality winding techniques. Karl H. Inderfurth. *Papers Am. Assn. Tex. Tech. 5,* 22-7 (Dec. 1949).

See TTD: *6,* 836.

Rotary thread guides for cross winding. Dixon Hawkesworth Ltd., E. Dixon & G. W. Singleton. Brit. P. 589 575. *Textile Mfr. 74,* 194 (Apr. 1948).

Describes improvements in rotary traversing thread guides of the wing type for winding machines. The guide is formed of 2 wings, each constructed of bent wire. This type of guide is found to produce cross-wound packages having firmer ends than those produced by the usual construction of guides.

Spooler. Irving C. Howes (to Davis & Furber Machine Co.). USP 2 485 382, Oct. 18, 1949.

A spooler is claimed having a driven drum on which the yarn mass rests and is wound onto the spool, a feed roll mounted in front of and parallel with the drum, a cooperating roll for the feed roll between which and the feed roll the yarn ends pass to the bight of the drum and spool, and means for driving the feed roll to cause the yarn ends to be fed by it and the cooperating roll to the bight of the drum and spool. A mechanism is provided for adjusting the feed roll and cooperating roll to maintain the peripheries of them out of contact but sufficiently close to pinch the yarn ends passing between.

Textile spinning and twisting spindle. Carl A. Berg (to The Fafnir Bearing Co.). USP 2 486 730, Nov. 1, 1949.

In a textile-spindle assembly, a rail having an opening therein, a spindle base member extending through the opening and in peripheral clearance relation therewith, whereby the base member may be variously tilted from a normal to the rail without contacting the rail, a radial flange on the base member on one side of the rail, a nut threaded to the base member on the other side of the rail, a first pair of oppositely dished resilient washer

discs between the rail and the flange, and a second pair of oppositely dished resilient washer discs between the nut and the rail, the discs being circumferentially continuous at both their inner and their outer edges, the discs of the pairs contacting each other at their inner edges, whereby their outer edges may assuredly span the clearance at the opening in order to obtain circumferentially continuous disc seating on the rail and on the flange and nut, whereby upon rotating a spindle supported by the base there may be a balanced and compact resilient suspension of the spindle more or less regardless of the inclination that the rotational axis of the spindle may seek to assume.

Twisting and cabling spindle. Henry C. Uhlig (to Howe Machinery Co.). USP 2 487 838, Nov. 15, 1949.

A multi-twist type of take-up for yarns and cords.

Twisting machinery. Albert E. Welch (to The Am. Thread Co.). USP 2 486 349, Oct. 25, 1949.

A method of increasing the tensile strength of multiple-ply twisted thread comprises stretching separate thread plies equally by positively advancing the plies at the same predetermined speed to a twisting device, twisting and advancing the plies equally at a higher speed in the twisting device than the speed at which the plies are advanced to the twisting device, to form a multiple-ply thread to provide a total stretch of between about 8½% and 10%, the amount of stretching of the separate plies being between about 2% and 3½%.

Winding conical packages. S. & E. Scragg Ltd. & C. L. Armes. Brit. P. 589 297. *Textile Mfr. 74*, 193 (Apr. 1948).

Describes a simple mechanism for winding conical yarn packages which obviates the necessity of varying the traverse of the yarn guides. The spindles are above the drums and the ends of each spindle engage in vertical slots in the ends of arms secured to the framing. The slots are arranged so that the spindle can fall low enough for the winding tube to engage with the surface of the drum so as to be driven by the latter and retain the spindle in operative position as it rises due to the building up. The yarn is fed by a guide which is carried by an arm hinged to a bar. This bar extends along the length of the machine and is reciprocated in any convenient manner. In order to produce a taper winding the spindles are disposed in vertical planes arranged at an

angle. This angular disposition is effected by making the arms of different lengths.

Winding machine. Chas. D. Jencks (to The Werdna Co.). USP 2 486 031, Oct. 25, 1949.

In a winding machine, the present invention provides an improved arrangement for periodically and intermittently locking the back and releasing the back for separation with respect to the package. Mechanical linkage between the feeler roll and the locking means eliminates electrical connections.

Winding silk and rayon knitting bobbins. Wilhelm Busch. *Textil-Praxis 4*, 285 (June 1949); *in German.*

For some knitting machines it is necessary to transfer the yarn from cross-wound bobbins to single-flange bobbins and in the transfer the yarn often becomes slack and entangles in the thread guide. This, and other faults, are often caused by an incorrect start in winding the bobbin. Correct and incorrect starting points on the tapered base are shown diagrammatically.

Yarn winding reel. Albert F. Cossett (to Leominster Tool Co., Inc.). USP 2 488 852, Nov. 22, 1949.

A yarn winding reel comprises a spool the outer peripheral surface of which is completely ribbed. Each end of the spool is provided with a trunnion, and the trunnions fit into sockets in arms projecting up from a base. The spool is removable, by removing the trunnions from the sockets.

Yarn processing B 6

Elimination of shiners in rayon yarn processing. A. Périchard. *Rayonne 4*, 45-63 (Dec. 1948); *in French.*

Shining places on rayon yarns may be avoided by processing and weaving them under such a tension that their limit of elasticity is not exceeded. Tension in grams used should not exceed 1/9 of the denier. Conditions in unwinding, warping, sizing, and pirning that give rise to shiners are considered. Suggestions are given for the elimination of shiners occurring during weaving.

End severing device. Brit. Celanese Ltd. Brit. P. 589 351. *Textile Mfr. 74*, 194 (Apr. 1948).

Describes a device to sever a thread which is running through a textile apparatus and in which a break has occurred, so that undesired feed of the broken thread may be avoided.

Special yarns B 7

Fibrous products and textiles produced therewith. Carleton S. Francis, Jr. (to Am. Viscose Corp.). USP 2 483 405, Oct. 4, 1949.

As an article of manufacture a fibrous product comprising a multiplicity of synthetic fibers formed from a synthetic organic potentially adhesive fiber-forming material admixed with a multiplicity of non-adhesive fibers.

Yarn products B 8

Method of making thermoplastic sewing thread. Wm. M. Camp (to The Clark Thread Co.). USP 2 483 455, Oct. 4, 1949.

A method of making sewing thread of nylon or the like which consists in applying to each of a number of thermoplastic, continuous filament yarns a predetermined degree of twist, twisting the yarns together with a predetermined degree of twist and while in a relaxed condition, subjecting the thread to an aqueous boil and then to action of steam at an elevated temperature.

Textile cord and process of making it. Leslie G. Henning & Frank L. Sessions. USP 2 485 153, Oct. 18, 1949.

A process of making textile staple fiber cord comprises saturating and wet-twisting together in a known direction a plurality of original singles yarns, each of the same known length and each having the same known number of twists, a greater number of twists than the known number, and in the reverse direction to the known direction to form thread; saturating and wet-twisting together in the known direction a plurality of the threads, a number of twists equal to the number by which the greater number exceeds the known number to form cord. The cord is stretched while saturated to a length not less than 85% or more than 96% of the same length of the original singles yarns and then it is dried at its stretched length, the twists of the singles yarns as they lie in the finished cord being eliminated.

Yarn applications B 9

Elastic yarns. Holeproof Ltd. Australian P. 134 282, Jan. 13, 1947.

The weaving or knitting of articles or fabrics incorporating elastic yarn is facilitated by rendering the elastic yarn temporarily inelastic by combining, preferably by counter-wound layers of textile filaments, an elastic yarn (e.g., rubber) with a relatively non-elastic yarn (e.g., calcium alginate) which has the characteristic of solubility in aqueous media. The non-elastic yarn controls the extensibility of the elastic yarn during manufacture, but is removed during scouring and the elasticity restored.

Yarn testing and numbering B 10

Batching oil and yarn strength. C. R. Nodder. *Jute Bull. 12,* 23-4 (Apr. 1949).

Tests were made to compare the loss in strength shown by yarns with 2, 3, 5 and 7% mineral oil added to the fiber when exposed to indirect sunlight, with short periods of insolation, for 6 months, but protected from the rain. All the yarns showed a considerable loss in strength, and those containing more oil showed a higher loss than those containing less oil. The reason for the greater loss in strength with a higher amount of oil was considered to be that oxidation of the oil (spread over a large surface of fiber and therefore very susceptible to oxidation) promotes simultaneous oxidation and degradation of the fiber.

FABRIC PRODUCTION C

Yarn preparation C 1

Beam doffing mechanism. Thomas F. Suggs (to Cocker Machine & Foundry Co.). USP 2 487 492, Nov. 8, 1949.

This invention provides a beam doffing mechanism for a warping machine including fulcrumed normally vertical supports for rotatively sustaining a beam in elevated yarn receiving position outwardly relative to the fulcrum pivot point of the supports; a reversible power means; and means for selectively controlling starting of the power means to lower the supports for beam doffing, and to return the same into vertical position after mounting an empty beam thereon.

Considers slashing methods. Anon. *Am. Wool Cotton Reptr. 63,* 13-14 (Nov. 17, 1949).

A report is presented on the discussion of slashing at the fall meeting of the Eastern Carolina division of the Southern Textile Association.

Electromagnet device for adjusting thread tension. Maschinenfabrik Beginner A. G. Brit. P. 589 106. *Textile Mfr. 74,* 193 (Apr. 1948).

Describes an electromagnet device for braking and adjusting the thread-tension of the winding-off bobbins of a heck.

Four cylinder slashers up Pepperell production. R. B. Horsley. *Textile World 99,* 112-13 (Oct. 1949).

Two high speed, 4-cylinder, inclosed, slashers are doing the work of 6 older type open machines. These machines can dry up to 1,000 pounds of yarn per hour, operating under 30 pounds of steam pressure, and with a top running speed of 95 yards per minute. A magazine section beam creel is used to reduce down time. Regain is controlled by the Brown Moist-O-Graph.

Loading clamp for warp tying machines. Chas. B. Crandall (to Barber-Coleman Co.). USP 2 482 155, Sept. 30, 1949.

This invention provides a clamp in which one of 2 clamping members or bars between which the warp or other material is to be clamped is supported for yielding movement with respect to the other bar so as to accommodate warps of different thicknesses, in combination with means for locking the movable bar in position with respect to the fixed bar in a manner such as to exert a uniform clamping action on all of the threads of the warp.

Preparation of rayon warps. A Périchard. *Rayonne 5,* 11-23 (Mar. 1949) ; *in French.*

This is a discussion of 2 methods of rayon warp preparation: 1) flat warping following by sizing in sheet, and 2) sectional warping followed by sizing in sheet. The type and quantity of the material to be processed should determine which of the 2 methods should be used.

Preparatory machinery for synthetic warps. Geo. E. Archer & A. Schuler. *Rayon & Syn. Tex. 30,* 45-6 (Nov. 1949) ; 50-51 (Dec. 1949).

This is a survey of methods and machines used in preparing synthetic warps. Among the machines discussed are: Gentsch leasing machine, "Little Uster" tying machine, and Zellweger Denting Machine. Examples are given of the use of these machines in mills with different requirements.

Sizing of cotton yarns. Karl Walter. *Textil-Praxis 4,* 271-73 (June 1949) ; *in German.*

In this discussion of sizing several recipes are given which utilize different hydrolyzing agents. Among the sizes discussed are the following: alkali, fats, degenerated starches, hydrolyzed mèchanically prepared soluble starches and modified starches.

Warping machine creels. E. Dixon & G. W. Singleton (to Dixon Hawkesworth Ltd.). Brit. P. 589 576. *Textile Mfr. 74,* 194 (Apr. 1948).

Relates to creels for warping machines particularly creels comprising a frame formed of tubular material with vertical members which carry thread guides and tension devices and also with tubular members supporting the brackets which carry the supports for the yarn packages. The vertical members of the creel are secured to the horizontal members by brackets which can be clamped in any desired position. The porcelain guides and the tension means are carried in brackets which can be clamped in any desired position on the vertical members. The package brackets are also formed as clamps which can be fixed at any position on the tubular members and readily removed.

Weaving C 2

Advances in carpet weaving. H. M. Catlin. *Am. Wool Cotton Reptr. 63,* 29, 31, 71 (Nov. 24, 1949).

Recent developments in Axminster, velvet, and jacquard looms are reviewed. The greatest improvements have been in the Axminster loom, but there is still a need for more improvements.

Automatic heald stop motion for dobby looms. Paul Rüesch. USP 2 485 414, Oct. 18, 1949.

An automatic heald stop motion for dobby looms comprises vertically movable heald frames, 2 racks with upper teeth arranged in parallel in each frame and passing with play through all the heald eyes. One rack is stationary in the related frame, and the other rack is mounted for endwise movement relative to the stationary rack. A lever pivoted on each frame is connected with the related movable rack, and a stop device engageable by each lever moving with the frame actuates the lever and the movable rack. A cantilever common to the several frames and connected to the stop motion projects into the path of the movable rack moving vertically with the frame and retained in the position assumed when actuated by the lever.

Automatic loom pirns. R. Hardmeyer. Brit. P. 589 852. *Textile Mfr. 74,* 195 (Apr. 1948).

Describes a pirn for use in automatic looms, made of a moldable artificial substance which is insensible to moisture. The retaining means on the bobbin by which the bobbin is gripped in the shuttle, comprise individual non-split metallic rings which are secured to the bobbin in the die casting process by which the body is molded.

Barre marks plague industry. Anon. *Am. Wool*

Cotton Reptr. 63, 9-10, 51 (Nov. 17, 1949) ; 11-12 (Dec. 8, 1949).

Hundreds of factors cause Barre marks or blemishes in woven fabrics. The more common causes are discussed including stretched filling yarn, yarn size variation, uneven oil lubrication, quills picking up dirt and oil from floor, filling yarn tension, twist differences, etc.

Brocade structure. Julius Wendlik. *Textil-Praxis 4*, 277-78 (June 1949) ; *in German.*

The design and construction of silk-gold brocade, crêpe de chine lamé, and shoe brocade are discussed; jacquard weaving plans for some of these are given.

Check strap bracket for looms. Leonard M. Rogers (to Draper Corp.). USP 2 489 979, Nov. 29, 1949.

A check strap bracket.

Design and production of rayon satins. A. T. C. Robinson. *Silk & Rayon 23*, 1349-54 (Oct. 1949).

Bright luster in a plain weave fabric is often objectionable because the yarn intersections produce highlights which are unpleasing in appearance. The surface of a satin, on the other hand, is practically unbroken by intersections and thus gives luster without glitter. There are 2 types of satin: 1) flat, made entirely from normal twist rayon, and 2) crepe, made with a crepe filling. Detailed constructional data are given for flat satins with acetate warp and filling, with viscose warp and cotton filling, and for several types of crepe satins including marocains, satins-de-Lyons, Bengalines and satin-back crepes.

Detection of causes for shiners in rayon fabrics. M. Weiss. *Rayonne 5*, 13-27 (Jan. 1949) ; *in French.*

The physical causes of shiners in rayon fabrics are discussed. Examples are given to show how the cause of shiners in the warp or filling can be detected.

Dynamics of improved lay drive. W. E. Baltz. *Textil-Praxis 4*, 281-82 (June 1949) ; *in German.*

Power distribution over a loom cycle is illustrated by a shunted 3-phase motor diagram. Movement of the lay is chiefly responsible for power fluctuation. The kinetics of acceleration and beat of the lay are considered and it is proposed that the lay energy be used to even out the cycle. Springs, compressed by the lay movement, are attached

near the lay pivot. If correctly dimensioned, the elasticity thus obtained produces linear oscillation which assists the drive, serves as a balance and improves efficiency and power.

Electric circular loom. Yves Latieule, Louis Cloche & Henri Bricout (to Comptoir Linier). USP 2 487 148, Nov. 8, 1948.

An electric circular loom which comprises, in combination, means for forming 2 superposed sheets of warp threads extending radially from a vertically axis to constitute a horizontal shed, a shuttle, means for guiding the shuttle along a circular path located between the sheets and having its center on the axis, and means, including at least one vertical electromagnet running along a circular path coaxial with the first mentioned circular path and located under the lower sheet of warp threads, for driving the shuttle along its path of travel.

Electric weft detector. Raymond F. Dion (to Crompton & Knowles Loom Works). USP 2 486 009, Oct. 25, 1949.

In an electric weft detector for looms, a base formed of electric insulating material, an electric detector rod slidable in the base, a wall forming part of the base having vertical and horizontal surfaces, and a leaf spring capable of being either vertically or horizontally disposed relatively to the base and held at one end thereof on the base and having a laterally opening slot near the other end thereof through which the rod extends, the slot being of such length as to contain the rod whether the other end of the leaf spring engages either one or the other of the surfaces of the wall.

Electric weft detector for shuttle changing looms. H. A. Whitin (to Crompton & Knowles Loom Works). USP 2 488 950, Nov. 22, 1949.

This is a shuttle changing loom having an improved form of electrically controlled weft detector for indicating when the shuttle is to be changed.

HEALDS [HEDDLES] FOR WEAVING. I. Laird. Manchester, England, Emmott & Co., Ltd. [1949]. 119 p. Price: 4s 6d.

Healds and reeds have always been an integral part of weaving, but their full importance has only been realized since the advent of synthetic yarns, resulting from extensive research into new technical developments, allied to the remarkable progress in scientific management. This monograph is intended to satisfy the needs of textile operatives, students, designers, managers and

research workers.—*Ambassador.*

Horizontally movable transfer hammer dog for automatic looms. Jos. Stuer (to Pearson & Pearson). USP 2 486 997, Nov. 1, 1949.

In a bobbin changing loom using one or more shuttles and having a reserve bobbin magazine and either one shuttle box or vertically shifting shuttle boxes under the magazine, transfer mechanism and a weft feeler, this invention provides a mechanism for positioning the transfer dog to engage the bunter when the feeler, preferably of the electrical type, indicates near exhaustion and closes the circuit to a solenoid or magnet which pulls a spring locking pin, or equivalent member or part, which ordinarily holds the dog in inoperative position, but which when pulled against its spring by the solenoid allows or causes the dog to assume its operative position with its free end in the path of the hunter. This is accomplished by interposing a solenoid carried by the stationary frame of the loom and connected by a flexible member, such as a chain, with such a movable part of the dog.

Letoff mechanism for looms. Clarence R. Kronoff (to Crompton & Knowles Loom Works). USP 2 487 450, Nov. 8, 1949.

In a loom having a warp beam rotatable to deliver warp, a geared means connected to each end of the beam controlling turning thereof, differential mechanism including a rotary force input member and 2 force output members, connections between the latter and the geared means, and rotary friction means turning in a plane parallel to the plane in which the input member turns and acting directly on the input member resisting rotation thereof.

Letoff motion for looms. Henry A. Turner. USP 2 488 148, Nov. 15, 1949.

This invention relates to improvements in a letoff mechanism for looms and more especially to the type of let-off for looms known as the Roper let-off on a Draper loom. It provides means to be adapted to be associated with the present means employed in the Roper let-off motion to utilize the existing cam shaft on a loom as a means of moving the pallet lever of the Roper let-off, thus eliminating the connection between the rocker shaft and the let-off mechanism.

Loom picker. Henry M. Bacon (to The Dayton Rubber Co.). USP 2 487 780, Nov. 15, 1949.

According to this invention, the picker is made in 2 parts and of different materials; the picker

body of a hard material of high tensile strength and the picker head of soft and resilient material. The picker head, which will wear out relatively fast, may be replaced without any difficulty by merely pulling the head from the projection and sliding a new element thereover.

Loom picker. Ernest Nassimbene (to The Gates Rubber Co.). USP 2 488 025, Nov. 15, 1949.

In a loom picker of the type having a picker block on one side, and means on the other side for attaching the block to a picker mechanism, in which the picker block comprises at least one group of square woven, rubberized fabric layers in which the warp and fill threads of adjacent layers are angularly related, the angular relation with respect to the first layer in the group increases progressively in the same direction, the angular increment being substantially equal to 180° divided by the number of layers in the group and there being at least 3 layers to a group.

Loom side and frame construction. Wm. A. Blanchard (to Crompton & Knowles Loom Works). USP 2 489 557, Nov. 29, 1949.

A frame for a loom, including loom sides, is made of sections of pipe fastened together.

Loom shuttle guard. J. P. Hoole. Brit. P. 589 612. *Textile Mfr. 74,* 195 (Apr. 1948).

A shuttle guard is constructed from 2 rods which are pivotally mounted in brackets attached to the front of the hand rail and so bent that one rod constitutes a front rod and the other rod a rear rod. Both rods are separate, but so bent that each rod constitutes a support for the other and produces a rigid frame when pivoted to the hand rail by the brackets. To enable the guard to be maintained in an operative position and also to be turned to an inoperative position, one of the rods passes through retaining brackets which cause it to be held in either position.

Mechanism for weaving seersucker cloth. O. Bourque (to Grosvenor-Dale). USP 2 489 231, Nov. 22, 1949.

A loom for weaving seersucker cloth comprises beams for the crinkle and ground warps and a cradle which is oscillated while crinkle warp is applied thereon toward the harness, the means for oscillating the cradle having a quick-release member for quickly supplying an excess of crinkle warp in slack condition to the harness.

New high performance materials for loom parts. J. W. Hutchinson. *Silk & Rayon 23,* 938 (July 1949).

The uses of laminated compressed, resin-impregnated wood on various parts of the loom, such as the picker stick, handrail, protection board, etc., are described in detail.

Picking mechanism for looms. Elliott A. Santon (to Crompton & Knowles Loom Works). USP 2 486 885, Nov. 1, 1949.

In a picking shaft for a loom having front and back bearing and provided with a picker stick and a picking actuator, a front shaft member having a gudgeon for the front bearing and a rear shaft member aligned with the front shaft member and having a gudgeon for the back bearing, a power arm secured to the front shaft member for operative connection with the picker stick, a power input means on the rear shaft member for operation by the picking actuator, 2 adjacent coupling elements one of which is secured to the front shaft member and the other of which is secured to the rear shaft member, and resilient non-metallic material operatively connecting the coupling members and causing the shaft members to turn together.

Pneumatic shuttle operating mechanism. Thos. Hindle. USP 2 488 192, Nov. 15, 1949.

In a loom utilizing a pneumatic picking system, the combination with the shuttle box and the shuttle of a charging bottle connected to a source of compressed air and to the shuttle box, a charging valve arranged between the bottle and the source of compressed air, and a pick valve arranged between the bottle and the shuttle box, the charging valve and the pick valve being controlled from a rotating part of the loom so that they open and close in the desired sequence and the charging valve being always closed when the pick valve is open.

Repp fabric. M. & F. Banyai & E. Harris. Australian P. 134 120, Nov. 5, 1946.

A repp fabric is provided by covering standing warps by cross-weaving thereon covering warps, each individual to a standing warp, and binding the covering warps by wefts on one side only of the standing warps. The covering warps and wefts are closely beaten to the fell of the fabric after each pick, whereby each standing warp is wholly covered by its associated covering warp to produce well-defined ribs on at least one face of the fabric.

Shadow striped voile. Anon. *Am. Wool Cotton Reptr. 63,* 11-12 (Dec. 1, 1949).

The use of thrown rayon yarns in fabrics pro-

duces a great variety of fabric constructions including a shadow striped voile which is analyzed. The fabric analyzed contains crepe yarns and has an important amount of shrinkage. It appears flat and smooth and has thick-and-thin or open places in the cloth which reduce slippage. All the yarns in the fabric are of a thrown character.

Shuttle guard for looms. M. D. Gourlay. USP 2 480 645, Aug. 30, 1949.

This invention provides a guard for all types of looms to prevent the shuttle from flying off its regular shuttle race or normal course across the loom and injuring a person. The guard is also serviceable in deflecting the shuttle back to its normal course when it tends to fly off into space. The guard is made of a transparent plastic material, such as Lucite, whereby not to obstruct the vision of the weaver or interfere with the drawing of threads through the reed. Furthermore, the guard is mounted in such manner that it can be swung to inoperative position to allow the weaver to draw threads through the reed as occasion requires. It will return automatically to operative position when the loom starts.

Shuttle loom. M. Paabo. Australian P. 134 357, Sept. 30, 1946.

A loom provided with means for unwinding the weft thread from a stationary spool, a nozzle for blowing the weft thread through the shed by means of a blast of compressed air, means for cutting the weft thread and a receiving funnel is characterized by the fact that the nozzle and unwinding means are arranged on the loom in such a manner that they do not take part in the reciprocating movement of the lay.

Transferrer arm for weft replenishing looms. Gabriel C. Beatrice (to Crompton & Knowles Loom Works). USP 2 488 158, Nov. 15, 1949.

In a transferrer arm for a reserve bobbin having a butt and tip, a foot on the arm to engage the butt end of the bobbin, a second foot on the arm for engagement of the bobbin intermediate the butt and tip thereof, and a third foot for engagement of the bobbin adjacent to the tip thereof secured to the second foot in adjusted vertical position relatively to the first and second feet to engage bobbins of different weft diameters.

Under pick motion for looms. Rudolf Hrdina. USP 2 481 425, Sept. 6, 1949.

The invention consists in that the driving energy is admitted to the picker stick through a picker shaft, this latter being provided in the lower third

of the sley height above the floor and preferably passing directly through the axis of the oscillating sley of the loom. The picker shaft is provided with a cam and driven rotatably or pivotally through a transmission deriving from the main driving shaft of the loom, the cam being provided with an adjustable nose which on the performance of the picking motion is resting against one or more adjustable rollers. For guiding the picker stick preferably a double-joint suspension is used, the suspension being together with the driving cam enclosed in a common casing.

Weaving Perlon yarns. A. Schule. *Kuntseide u. Zellwolle 26,* 92-3 (1948) ; *in German.*

Considerations involved in the weaving of Perlon yarns are discussed.

Weft replenishing motion. S. A. Terry. Brit. P. 589 448. *Textile Mfr. 74,* 194 (Apr. 1948).

Describes a weft replenishing motion which can easily be adapted to existing looms. The motion comprises a rotary shuttle box having a number of cells for shuttles mounted on one end of the sley, and having its partial rotation governed by a feeler capable of 2 movements which are respectively controlled by the weft, and by the weft holder in the shuttle when the latter is at the opposite end of the loom.

Wrightshaw's and Hodgson's drop box motion. W. Middlebrook. *Textile Mfr. 75,* 471-3 (Oct. 1949).

The Wrightshaw positive drop-box motion is unique in that it does not depend on chains, starwheels, clutches or eccentrics. The raising or lowering of the boxes is done by a double rack suspended from a lifting lever enclosing small pinion wheels which are engaged by the lifting movements of cams against the lever. The Hodgson drop box motion works on the clutch and star wheel principle and the Whitesmith motion works by means of compound eccentrics. An advantage of the eccentric motion is that the boxes begin to move slowly, and the speed increases as the center of lift is reached, then they slow down again towards the end of the stroke.

Knitting C 3

Basic for the calculation of patterns with regard to circular spring needle machine. II. A. Aurich. *Melliand Textilber. 30,* 191-2 (May 1949) ; *in German.*

Part I of this article handled the course of calculation of the repeat, while the present remarks

deal with practical transfer of a point paper design to the circular knitting frame. Scattered throughout the text will be found occasional checks intended to demonstrate that the plush and plain sinkers inserted on the basis of a special course will actually give the desired design when operating the machine. Special attention is devoted to the calculation of tuck patterns in which a certain limitation resembling a repeat is the result of the restricted circumference of the presser wheel.

Circular knitting machines. Mellor Bromley & Co. Ltd. & A. Shortland. Brit. P. 589 622. *Textile Mfr. 74,* 195 (Apr. 1948).

Describes mechanism for feeding yarn to the needles of circular weft knitting machines furnished with independent needles and sinkers or web holders. The mechanism comprises a movable yarn guide and an associated yarn trapper. The guide and trapper operate conjointly to cause a length of a yarn held between them to be initially placed so as to extend from front to back of a circular series of sinkers or web holders and to be engaged by a sinker or web holder to effect introduction of the yarn to the needles. The mechanism is adapted to discontinue feeding a yarn to the needles, by reversion to its original position, during which movement the running yarn is trapped and severed so that another length is held ready for the next introduction.

Control shaft. H. Wignall. *Textile Mfr. 75,* 474-5 (Oct. 1949).

Describes the "horizontal front shaft" which initiates changes in knitting machine motions such as: 1) selected needle splicing; 2) speed wheel; 3) graduated stiffening; 4) chain ratchet; 5) clutch motion; and 6) yarn take up and various cams.

Drive for plating carriers in knitting machines. Ubaldo Pianta (to Societa Italiana Ernesto Breda Per Costruzioni Meccaniche). USP 2 485 917, Oct. 25, 1949.

A device for driving the plating carriers in straight bar knitting machines comprises in combination a piece reciprocating parallel to carrier rods of such machines, which move longitudinally forwardly and backwardly, the piece bearing a member displaceable transversely to the carrier rods, pieces not partaking in the movement of the carrier rods and provided with inclined surfaces engaging the transversely displaceable member, pieces fixed on the carrier rods provided with teeth of different heights engaging the transverse-

ly displaceable member for a determined transversal position of the latter, whereby the carrier rods are dragged by the reciprocating piece for strokes determined by the position of the inclined surfaces.

Fashioning mechanism for knitting machines. E. W. Kaul & H. E. Haehnel (to Textile Machine Works). USP 2 489 141, Nov. 22, 1949.

A full fashion knitting machine has a point positioning spindle, an end stop positioning spindle, and a narrowing head provided with means for manipulating the point spindle to move points in use one needle space in the widening direction in a loop transferring movement, then one needle space in the widening direction in a non-loop transferring movement, and then one needle space in the narrowing direction, in a loop transferring movement. The stop spindle is held stationary during the 3 movements of the point spindle.

Half hose mill gets facts on looping. C. Mallard Bowden. *Textile World 99,* 118-19 (Oct. 1949).

A detailed study of methods used in looping followed by a printed list of suggestions and do's and don't's in the form of a guide resulted in raising new looper operators to 38 dozen per day in 24 weeks. Illustrated with pictures and a reproduction of the guide and the learning curve.

Knitted fabric and process of making the same. Roland F. W. Krueger (to Bamberger-Rienthal Co.). USP 2 485 747, Oct. 25, 1949.

This invention provides a knitted fabric having a face side and a rear side, the fabric comprising a plurality of inelastic strands, a portion of each inelastic strand comprising straight stitches forming the face side, a portion of each inelastic strand comprising cross stitches with an adjacent inelastic strand and forming the rear side, and a plurality of elastic strands chain stitched with the cross stitches on the rear side.

Knitting machine lubricator. Eugene St. Pierre (to Hemphill Co.). USP 2 488 346, Nov. 15, 1949.

A lubricator for a circular knitting machine having a starting and stopping mechanism comprises a reservoir, an outlet from the reservoir, a needle valve in the outlet, a cam on the start and stop mechanism and a member by the cam, connections between the member and the needle valve through which movement of the mechanism to start and stop the machine is transmitted to the needle valve to open and close it.

Knitting process. Roland F. W. Krueger (to Bamberger-Reinthal Co.). USP 2 485 746, Oct. 25, 1949.

This invention provides a method of feeding and controlling the stretching of elastic strands during the knitting process.

Lint can be licked in your knitting mill. Laurence Levy. *Textile World 99,* 137, 202, 204 (Oct. 1949).

Lint in knitted goods is almost sure to result in second quality fabric. It should be systematically and carefully removed. The most practical method is by means of air as follows: 1) a small stream directed at the needles; 2) a small stream of air on the sinkers; and 3) a continual downdraft on the stop-motion from a stationary or moving fan.

Manufacture of knitted hosiery. Max C. Miller. USP 2 489 658, Nov. 29, 1949.

In a flat knitting machine, knitting instrumentalities including a series of spring beard needles movable as a unit, a narrowing machine having narrowing point units, needle knitting cams, narrowing machine vertical motion cams for moving the narrowing point units in accordance with a knitting cycle to close the beards of selected needles, and means operative between knitting cycles to shift the narrowing point units longitudinally of the needle series.

New circular knitting machine. Albert Diebler. *Textile-Praxis 4,* 217 (May 1949); *in German.*

Features of the Juwel circular knitting machine include: Precision made, interchangeable parts and a spread between 200 and 400 courses a minute.

Novel device saves wrap yarn. L. J. Williams. *Textile World 99,* 145 (Oct. 1949).

Harriss and Covington Hosiery Mills have developed and are using a special stop motion which stops the knitting machine before the wrap yarn runs completely out. The operator can tie a new bobbin in without having to thread the guides, thus saving production time and also wasting less wrap yarn through using the old bobbin more completely. The device is spring actuated through a slot in the yarn holder and cop.

Nylon staple in half hose. D. H. Heckert. *Rayon & Syn. Tex. 30,* 72-4 (Dec. 1949).

The characteristic properties of nylon staple which make it suitable for knitting are reviewed. The pilling of spun nylon articles, which is causing some concern, results from the teasing of fila-

ment ends from the knitted fabric and may be controlled by increasing the twist of the spun yarns. The loft, coverage and elasticity of spun nylon yarns can be increased by using crimp-set staple, and by using shorter length staple.

Nylon processing apparatus. Thomas W. Prosser. USP 2 487 764, Nov. 8, 1949.

In combination in a machine for treating nylon hosiery and other elongated articles; a retort providing a vertically disposed treating chamber to receive a treating fluid under pressure, the chamber having a vertically elongated doorway for the passage of the hosiery and articles to and from the chamber while in vertical position; a door movably disposed within the chamber to close the doorway; means mounting the door for movement edgewise within the chamber; means for sealing the door against loss of fluid under pressure when the door is closed; a plurality of groups of forms normally vertically disposed to receive the articles being treated; and carriers supporting the respective groups of forms for selectively moving the respective groups of forms between treating position within the chamber and an outside work station adjacent the doorway.

Possible applications of the flat knitting machine. Wilhelm Busch. *Melliand Textilber. 30*, 510-12 (Nov. 1949) ; *in German.*

On the flat knitting machine the fabric may be increased or decreased in width at will fully automatically. The method of operation of the machine, the construction of which differs from that of the ordinary motor flat knitting frames, is described. It is pointed out that the flat knitting frame for widening and narrowing can also be used for other purposes than those for which they were originally introduced. By slightly modifying the needle lifter the neck and arm openings of pullovers, jackets, children's shirts, dresses and waists are knitted full-fashioned, so that economies can be effected in cutting and making up. Another possibility presents itself in the working in of a 2/2 broad rib in pullovers, sleeve cuffs, etc. An accurate description of the operation is given. A third possibility is in the utilization of flat knitting frames for widening and narrowing for the production of knitted goods with fancy designs with the assistance of the converted needle-lifter. The operation is explained by describing in detail a fully automatically knitted cast-off pattern.

Plating carrier drive for knitting machines. Ubaldo Pianta (to Societa Italiana Ernesto Breda Per Costruzioni Mecaniche). USP 2 487 943, Nov. 15, 1949.

In a plating carrier drive in a straight-bar knitting machine for hosiery and the like, a slide, a slipper reciprocable longitudinally on the slide, a pair of spaced frame members between which the slide reciprocates, latch levers each pivoted to a respective frame member and each having a trip arm, and trip lugs at the ends of the slide engageable with the trip arms upon movement of the slide a predetermined distance from the ends of its reciprocation, other lugs on the slipper engaged by the latch levers at the ends of the reciprocation of the slide, the engagement of the trip arms with the trip lugs freeing the latch levers from the lugs on the slipper.

Preboarding machine. Proctor & Schwartz, Inc. Australian P. 134 249, Apr. 28, 1947.

To prevent rubbing together of the heel portions of adjacent stockings when the forms are being pushed into position, a plurality of forms are pivotally mounted for movement from an inner closely spaced relation to an outer widely spaced relation in planes radiating from a common axis. An actuator is movable from a low to a high elevation along the axis to effect radial outward movement of the forms into widely spaced relation and is adapted to return to its low position, free of the forms, by gravity. Means control the descent of the actuator to stop at an intermediate position where the forms may be moved manually into contact therewith in an intermediate spacing. The actuator may then be lowered to move the forms into closely spaced relation.

Process for manufacturing knitted fabric. Gustave C. A. Alric. USP 2 480 894, Sept. 6, 1949.

In a hosiery knitted fabric manufacturing process, the step which consists in moving the leader by the amount of 2 needles outwards during the looping and in bringing it back by an even number of needles inwards during the knocking over.

Production of rayon crepe yarn warp knit fabrics. R. Brébar. *Rayonne 4*, 42-3 (Dec. 1948) ; *in French.*

The construction of 5 fabrics knitted from rayon crepe yarn on 2- and on 3-cylinder warp knitting machines is discussed in detail.

Retractable electric needle protector for knitting machines. Edw. Vossen (to Stop-Motion Devices Corp.). USP 2 481 632, Sept. 13, 1949.

This invention proposes improvements upon prior needle protectors which make it possible in a

practical way to properly set the pointer close to the finished stitches, and to maintain this setting indefinitely. A feature of the new needle protector of this invention is an arrangement whereby the pointer is moved back to its operative or forward position close to the knitting needles without directly touching or moving the pointer. A certain stem is provided which when moved, indirectly moves the pointer back into the operative, or forward position. For this reason it is impossible for the pointer to be accidentally manually flexed and bent when resetting the protector.

Speed variation on knitting machines. Allmanna Svenska Electriska Aktiebolaget. Brit. P. 589 646. *Textile Mfr. 74*, 195 (Apr. 1948).

Describes an arrangement in commutator motor driven knitting machines for lowering the speed when narrowing or for other changes of the speed. The speed variations are determined by lugs on the lug chain of the machine. The lugs are arranged only to prepare the speed changing by acting on an electromagnetic device releasing a trip mechanism which when released is controlled by a cam driven by the machine to actuate means for producing speed variations.

Stop device for knitting machines. John H. Hoag (to Am. Steel & Wire Co.). USP 2 483 541, Oct. 4, 1949.

The present invention combines the usual thread guide and stop into a single unitary mechanism. The stops are located immediately adjacent the knitting needles. Therefore any thread breaks in this region or elsewhere are effective to operate the stop and halt the machine. This invention relates particularly to machines that knit fabric covers on elongated cores, such as wires, cables or the like.

Stop motion for knitting machines. Chas. S. Martin, Lewis H. Colton & Albert E. Cooke. USP 2 488 133, Nov. 15, 1949.

In a knitting machine incorporating a yarn carrier which travels to and fro along a line of needles; a stop motion including a detector for initiating its functioning and for testing the presence and correct tensioning of the yarn, and means for causing the detector to place a testing strain on the yarn only at an end of the carrier traverse.

Stop motion for knitting machines. Michael Antonevich (to The Crawford Mfr. Co., Inc.). USP 2 488 614, Nov. 22, 1949.

A stop motion for knitting machines comprises a

spring-operated trip member provided with a pin which is engaged by a latch to hold the trip member in position against pressure of the spring. The lever is supported in operative position by a toggle which is retained in extended position by an electromagnet.

Take-up roller. Wm. J. Kuehnel (½ to John G. G. Merrow). USP 2 486 179, Oct. 25, 1949.

A take-up device for a fabric having sides of unequal length comprises a substantially cylindrical roller having a tapered portion at one end; the roller may be regulated and attached to the fabric so that the shorter side of the fabric will be affixed to the tapered portion and the longer side will be affixed to the opposite end of the roller.

Technical trends in knitting. J. B. Lancashire. *Brit. Rayon & Silk 26*, 58-9, 64 (Oct. 1949).

Recent developments have promoted higher output of fabric per unit of production. Among these developments are: new circular machines with as many as 96 feeders on a 28 in. diameter machine; finer gage machines for the manufacture of both full-fashioned and seamless nylons; ladder-proof stockings by means of a special stitch; nylon tricot, using several different stitches; the development of knitted cloths made of wool, rayon, or nylon; and the making of elastic fabrics, such as corsets and swim suits. Each of the above is discussed, and diagrams of some stitches are included.

Thread-feeding mechanism. Roy C. Amidon (to Vanity Fair Mills, Inc.). USP 2 489 609, Nov. 29, 1949.

This invention provides in a thread-feeding mechanism, means for letting-off the thread from a beam continuously at a predetermined linear speed.

Treatment of nylon and other yarns. Peter Alexander, Henry Burrows & Philip D. Smith (to Wolsey Ltd.). USP 2 485 230, Oct. 18, 1949.

A process for setting or imparting permanence of form to loop formations or the general shape of fabric knitted from thermoplastic yarn in a knitting machine consists in wetting the yarn prior to the knitting operation, and subjecting the wetted yarn in the vicinity of the knitting needles to heat treatment by a stream of hot air so that the yarn is set in the form in which it is shaped on the needles.

Warp knitting machine. Raymond A. Fuhrer, Robert H. Roughsedge & Hans G. Lustig (to Celanese Corp. of Am.). USP 2 486 525, Nov. 1, 1949.

In a warp knitting machine wherein the torque

for rotating a warp beam is transmitted by the tension of the warp threads applied by the knitting elements, means for controlling the letoff of the warp threads from the warp beam, the means comprising a movable tension bar over which the warp threads pass on their way to the knitting elements, a reactor arm movable by the tension bar, a motor operatively connected to the warp beam, and electronic means operated by the reactor arm for continuously controlling the speed of the motor.

Warp knitting machines. Brit. Celanese Ltd. Brit. P. 589 676. *Textile Mfr. 74,* 195 (Apr. 1948).

Describes a device for automatically operating stop motions on warp knitting machines, etc. A warp is fed from a beam supported on a driven shaft, and the yarns pass under an idler roller to a warp knitting machine. The fabric passes over an idler roller to a driven take-up roller. Beneath the warp and extending across the full width of the warp are a pair of nip rollers. Adjacent to the rollers is a dancing bar connected to a sensitive micro switch, the operation of which sets the stop motion in operation. When a yarn breaks, it falls and is picked up by the rollers which have a peripheral speed greater than rate of travel of the warp, so that the broken end tightens between the nip of the rollers and the idler roller and presses down the bar, causing it to operate the micro switch and so shut off the machine.

Special fabrics C 4

Absorbent fibrous sheets and method of making same. Raymond B. Seymour & George M. Schroder (to Henry H. Frede & Co.). USP 2 486 803, Nov. 1, 1949.

The process of making a moisture absorbent article suitable for toweling which comprises applying to a sheet of unwoven fibers having a random distribution, a substantially continuous coating of a 0.5 to 2.0% aqueous solution of a sodium salt of a carboxyl alkyl derivative of cellulose, and applying heat within the range 300° to 450°F. to expel the water of solution and convert the cellulose derivative to an essentially water insoluble product.

Broche and embroidered goods. A. Fülle. *Melliand Textilber. 30,* 507-09 (Nov. 1949); *in German.*

The production and structure of broché and embroidered goods are discussed.

Coated elastic fabric. Carleton S. Francis, Jr. (to Am. Viscose Corp.). USP 2 485 725, Oct. 25, 1949.

As an article of manufacture, an elastic textile fabric having a non-self-sustaining continuous film of a thermoplastic elastomer thermally bonded to superficial portions of at least one surface of the fabric in such a manner that the points of crossing of the yarns in the fabric and the remainder of the fabric except for the superficial points are free of the film material, whereby the fabric is free to expand and to contract, the surface film having a thickness of not over .002" and being adapted to follow the movements of the fabric without rupture or separation therefrom.

Diaper and like sheetlike material. Raymond B. Seymour & George M. Schroder (to Henry H. Frede & Co.). USP 2 486 806, Nov. 1, 1949.

A diaper having both sides water pervious comprising a sheet of unwoven fibers having a random distribution, and a substantially continuous, moisture transmitting coating on both sides thereof of a water insolubilized composition consisting of 40 to 65 parts of a solid polyethylene glycol having an average molecular weight of 1000 to 7000 and 35 to 60 parts of a styrene-maleic anhydride interpolymer, the coatings having been subjected to a temperature of from 250 to 450°F.

Diapers and like sheetlike materials. Raymond B. Seymour & George M. Schroder (to Henry H. Frede & Co.). USP 2 486 805, Nov. 1, 1949.

The process of making a diaper having one side water-repellent which comprises applying to one side of a sheet of unwoven fibers having a random distribution, a substantially continuous coating of a 0.5 to 2.0% aqueous solution of sodium carboxy methyl cellulose, applying heat to the coating on the order of 300 to 450°F. whereby a moisture transmitting coating of a 0.5 to 4.0% aqueous solution of 25 to 40 parts of a solid polyethylene glycol having an average molecular weight of 1000 to 7000 and 60 to 75 parts of an ammonium salt of styrene-maleic anhydride interpolymer, and applying heat to the latter coating on the order of 250 to 450°F. to expel the water of solution and convert the coating to an essentially water insoluble and water-repellent product.

Fibrous structure. E. G. Tyrrell & R. B. Metherell. Australian P. 134 166, Dec. 18, 1946.

A fiber mat for upholstery purposes or for use in making plastic sheets is made by placing an unstable layer of coarse, long fibers (e.g., sisal) against a plurality of lines of yarn, and then punching, as by punches reciprocating through

holes in a die plate, some of the fibers through the yarn at intervals to make the mat self supporting.

Furnishing trimmings. A. Crossland. *Textile Mfr. 75,* 466-69 (Oct. 1949).

This describes the fiber composition, yarn counts, weaving particulars and over-all construction of trimming specialties such as ruches, pipings, gimps, and various types of laces.

Heavy elastic webs. The shuttleless loom. Smallwares no. 18. A. Thompson & Sigfrid Bick. *Brit. Rayon & Silk 26,* 52-4 (Oct. 1949).

The construction of elastic webs using the double plain weave principle, a face and back weave with binder and rubber threads, and a figured fabric using a Jacquard for the face ends and heald shafts for the rest of the weave are described and shown in illustrations of the finished fabric and design paper diagrams. The second half of the article deals with the development of the shuttleless loom a few years ago. This loom employs a needle to carry the filling through the warp shed. The filling is drawn from a large supply package that will last 2 or more weeks. The principles of operation are pictured and described.

Manufacture of pile fabrics. Chas. P. Crossley. USP 2 488 004, Nov. 15, 1949.

According to the present invention there is provided a machine for manufacturing pile fabrics, wherein any one of the wires of a plurality of wires forming the spaces into which the pile elements are pressed to form a fold is mounted upon a supporting member so as to be removable therefrom and a substitute replaceable therefor without of necessity of disturbing any more than at the most the next adjacent wire.

Method of making stiffened permeable sheet material. August F. Schramm, Jr. USP 2 489 466, Nov. 29, 1949.

Method of making a stiffened permeable textile sheet product which comprises moistening a surface of the sheet by spraying lightly with a normally non-volatile plasticizer in liquid form applying over the sprayed surface thermoplastic particles that are soluble in the plasticizer, removing those particles which do not adhere to the sheet and then subjecting the sheet to an elevated temperature.

Method of making tufted terry products. Eugene D. Miller (to Callaway Mills Co.). USP 2 486 963, Nov. 1, 1949.

A method of making terry products which comprises sizing terry pile warp yarns, interweaving

the sized terry pile warp yarns with ground warp and filling yarns to form a fabric from which terry loops project on both faces, passing tuft yarns through selected areas of the fabric from one face to form U-shaped tufts having bights at the face and legs projecting from the opposite face, bleaching the tufted fabric, and washing the bleached fabric.

Method of preparation of composition fabric material. Howard Snow & Julia D. Hill (to Southern Friction Materials Co.). USP 2 484 756, Oct. 11, 1949.

An impregnated flexible fabric material is obtained by impregnating fabric material with a thermosetting resin composition and applying heat to the impregnated material to remove solvent and harden and set (i.e., cure) the impregnant in situ; pressure-abrading the impregnated material to remove the hard and brittle surface crust of impregnant which forms during the curing step, and thus render the fabric material softer, smooth, gripping, and flexible; and then finishing the impregnated and pressure-abraded fabric material to augment the physical properties of the resulting composition fabric material. Composition fabric materials can be prepared in this manner from coarse, cheap cotton and even jute fabrics. The materials may be used for shoe soles, floor coverings, step treads, friction surfaces, etc.

Modern net making technique. Anon. *Textile Mfr. 75,* 460 (Oct. 1949).

A new automatic machine for making nets is described which utilizes 2 sets of warps, 2 sets of hooks, and a shuttle carriage to produce weavers' knots at predetermined intervals. The machine can be used with the conventional netting fibers to make all types of nets.

Monofilament fabrics require special techniques. Anon. *Textile World 99,* 108-11 (Oct. 1949).

Monofilament fabrics can be warped directly from bobbins to loom beam. Most of them must be drawn in, though some of the finer filaments can be knotted. The yarn can be entered in the drop wire and heddle at the same time. Wooden shuttles should be used. Filling winding should be done overend, and guards must be moved to control the balloon. Most monofilament fabrics must be calendered. Sometimes the fabric is heated as it is calendered or the filling is heated in the battery before it is put in the loom.

Nonslip rug pad. Milton Newman. USP 2 485 307, Oct. 18, 1949.

A warp-knitted non-slip rug pad fabric adapted to be cut to any desired size or shape for application beneath a floor rug comprises a plurality of independent main body yarns each formed of resilient material and coated with liquid latex or the like, and a plurality of spaced rows of warp-knitted chain stitches formed of auxiliary yarns. The body yarns are each sinuously laid relatively to the rows of chain stitches so that alternate portions of each body yarn extend course-wise and wale-wise of the rows of chain stitches with successive course-wise extending portions of a plurality of adjoining body yarns being interlocked within a single stitch of the chain common to the successive body yarn portions, and with the successive wale-wise extending portions of the body yarns incorporated within the chain stitches disposed between the single stitches. The relative arrangement of the several body yarns is such as to produce in the fabric a series of mesh openings of substantial size.

Printer's blanket. Lewis R. Liles & Edgar W. Chapman (to The B. F. Goodrich Co.). USP 2 489 791, Nov. 29, 1949.

A printer's blanket of uniform flexibility, and highly stretch-resistant in a direction of the blanket, is made of soft vulcanized rubber and a flexible backing of glass fabric.

Process and apparatus for producing fibrous materials. Carleton S. Francis, Jr. (to Am. Viscose Corp.). USP 2 483 406, Oct. 4, 1949.

The method of making a composite fabric comprising: disrupting a plastic spinning material into a gaseous atmosphere to produce a plurality of discontinuous filaments; depositing the filaments in a promiscuously intersected condition to form a primary web; depositing natural fibers in a discrete condition to form a secondary web, one of the webs being deposited in a superposed relation to the other web; and subjecting the webs to heat and pressure whereby the natural fibers are bonded together by the plastic filaments.

Process of making a fibrous product. Carleton S. Francis, Jr. (to Am. Viscose Corp.). USP 2 483 404, Oct. 4, 1949.

The method of spinning an unwoven fabric comprising: heating a plastic spinning material to a molten state; disrupting the molten material into a gaseous atmosphere into a plurality of filaments; and depositing the filaments while sufficiently plastic to adhere to one another, upon a retaining wall in such a manner as to cause the filaments to intersect and unite into an integral previous web.

Rug. Francis P. Groat (to Magee Carpet Co.). USP 2 486 942, Nov. 1, 1949.

A rug comprising a base fabric interwoven with multi-ply pile warp yarns, each of the plies of which is slack twisted, the pile warp yarns being raised upwardly from the fabric to form rows of long twisted loops and intermediate rows of short twisted loops, the loops of each row being spaced apart and arranged in staggered relation to the loops of the next adjacent row, the short loops being spaced apart a distance sufficient to allow the short loops to lie down in underlying relation to the long loops.

Sliding heddle for composite looms. Sylvester T. Bryson, Jr. USP 2 486 919, Nov. 1, 1949.

In composite looms which are designed for weaving a tubular fabric about a hose or other tubular member and which have pairs of confronting channeled heddle guides, there is provided a heddle adapted to slidably engage between the guides, the heddle comprising an elongated flat bar, a roller carrying pin fixed to the bar adjacent one end thereof, a tubular yarn guide fixed to the bar adjacent the opposite end thereof, and a plurality of anti-friction members carried by the bar and projecting from the opposite sides thereof for engagement in the channels of the guides.

Textile materials and method of making same. Eric E. Weiss (to United Merchants & Mfrs.). USP 2 483 861, Oct. 4, 1949.

The present invention contemplates the production of synthetic yarns, fabrics and materials having the features normally associated with fabrics made exclusively or nearly so from spun yarn; such as a rich, subdued luster and a luxurious soft hand and touch, although made in part from continuous filament yarns. Another object is to produce synthetic yarns, fabrics and textile materials having the desirable properties of fabrics made of spun yarn, but characterized by high wet and dry tensile strength and dimensional stability. The method of manufacturing includes the steps of spinning composite yarns, each made of a core portion of continuous filament thermoplastic material and a wrapper portion of synthetic fibers for each core, fabricating the yarns into textile materials, partially setting the same in boiling water while preventing any permanent adhesion between the thermoplastic core and the synthetic wrapper, processing the materials into the desired shade, and then completing the setting by applying thereto a synthetic resin of the thermosetting type in the presence of a catalyst.

Fabric applications C 6

Multi-layer insulating applications include non-capillary glass fabric. Anon. *Corrosion 5*, 313 (Sept. 1949).

Glass fabric was successfully used to separate, reinforce, and protect bitumen mastic insulation, an application where the inorganic and capillary-free nature of the glass cloth minimized loss of the volatile oils which keep the mastic flexible. Good tensile strength under both low and high temperatures was a further advantage.

Process of making orthopedic braces. Roger Anderson. USP 2 489 252, Nov. 29, 1949.

This invention provides a process of making an orthopedic brace which comprises thoroughly wetting a fabric formed of plastic fibers which is soluble in a volatile organic setting agent, the setting agent being characterized by having a saturation value for the plastic of between 50 milligrams and 300 milligrams per 100 cc of setting agent at 70°F., whereby upon allowing the solvent to evaporate there is formed a brace of substantially unyielding and inelastic construction.

Waterproof emery cloth or paper. Kapur & Jain. Indian P. 39 990 (through *J. Sci. Ind. Research (India)*).

Process of manufacture comprises applying adhesive material containing a fungicide in molten state to basic cloth already treated with mildew resistant, fixing abrasive material and stoving, thereafter applying coat of adhesive solution and stoving further.

STANDARD FINISHING D

Applications of automatic temperature and humidity control in textile drying. Leo Walter. *Textile Mfr. 75*, 462-5 (Oct. 1949).

Different types of textile driers require different approaches to the temperature and humidity control problem. Typical examples are given of control requirements in driers using natural air convection, induced and forced convection and in driers provided with recirculation systems.

Applications of peroxides. Wilhelm Hundt & Karl Vieweg. *Textil-Praxis 4*, 237-40 (May 1949); *in German.*

Peroxides, which are used in many textile processes as oxygen carriers, are reviewed and their applications in bleaching, finishing and laundering are discussed. The applications of new peroxides as well as the established ones are noted.

Chemical bleaching. W. Döhle. *Textil-Rundschau 4*, 81-6 (Mar. 1949); *in German.*

This is a survey of the historical development of the bleaching of cellulose textile materials since the discovery of chlorine by Scheele in 1774. 36 references.

Controlled finishing of nylon knit fabrics. A. J. Nisbet. *Can. Textile J. 66*, 52-6 (Oct. 28, 1949).

A new heat setting process for nylon consists essentially of subjecting a single thickness of the fabric to high velocity air just under the melting point of the nylon, in a pin tenter equipped with automatic tension control, overfeed, and uncurling devices.

Drying of textiles. F. W. Thomas. *J. Soc. Dyers Colourists 65*, 479-83 (Sept. 1949).

This paper gives a general picture of textile drying in Britain and other countries, and compares the relative efficiencies of the various methods from the standpoint of energy utilization. Steam, air, infrared and high frequency drying are discussed. Infrared drying of textiles is not highly considered in view of the fact that it is slow and relatively inefficient. High frequency drying, although possessing some merit, requires the use of extremely large and expensive electrical installations thereby making the cost prohibitive. The use of steam or steam and air appear to be most suitable for general all around drying.

Dyeing, bleaching, etc. machines. S. Spencer Lord. Brit. P. 589 147. *Textile Mfr. 74*, 193 (Apr. 1948).

A machine for dyeing, bleaching, mordanting, soaping, impregnating, oxidizing, souring and washing comprises a number of separate dye kiers each of which is provided with its own pump for circulating liquid and with its own valve for controlling and directing the flow of liquid. Each of the kiers has a separate, upper, open-topped liquid compartment in direct communication with the adjacent kier and also in direct communication with the remaining part of its own kier. Valves in the communications between the liquid compartments enable any one of the compartments to be placed out of or into direct communication with the adjacent compartment at will. By this means some or all of the upper compartments can be connected together for simultaneous use of all the kiers for the same treatment or can be shut off from each other for simultaneous use of some or all of the kiers for different treatments.

General principles of textile drying. R. Dicker. *Rayonne 4,* 39-51 (Oct. 1948); 89-97 (Nov. 1948); 109-15 (Dec. 1948); *5,* 39-45 (Jan. 1949); 57-61 (Feb. 1949); 81-87 (Mar. 1949); *in French.*

The physical principles of textile drying are discussed; examples are given to show the importance of not drying material to a point below its critical moisture content. Hot air drying is discussed with reference to the role of fiber structure in the mechanism of evaporation; rayon fibers in particular are noted. Solvent-solute migration is discussed as are various methods of drying. The use of the Fielden Drimeter for controlling the moisture content of textile materials is also noted.

Heat-treating fabric. Wendell H. Shields. USP 2 485 072, Oct. 18, 1949.

The method of treating thermoplastic fabrics comprises moistening a length of fabric, winding it and a superposed length of surfacing material onto an electric conducting core resulting in alternate layers of fabric and surfacing material. The roll is then surrounded with an electric conductor, and the core and surrounding conductor are connected in a high frequency electric circuit so that the high frequency current passes through the roll heating it. The current is maintained until the roll has become heated to the plastic point of the fabric, then the current is disconnected, and the roll is allowed to cool.

Liquid supply in milling machines. F. C. Pratt & J. W. Peace. Brit. P. 589 165. *Textile Mfr. 74,* 193 (Apr. 1948).

A milling machine has above the machine a tank filled by means of a pump with the liquid it is desired to apply to the fabric. The bottom of the tank has an outlet which leads through a valve-controlled pipe to a point in the machine adjacent the path of the traveling fabric.

Process and apparatus for continuously neutralizing dry acid cloth. Roland E. Derby (to J. P. Stevens & Co., Inc.). USP 2 485 710, Oct. 25, 1949.

The process of continuously neutralizing dry acid cloth which consists in causing the cloth continuously to travel through a chamber, continuously supplying to the chamber ammonia gas and water vapor, and in correlating the amount of acid in the cloth while in the chamber and the amount and proportions of the gas and water vapor continuously supplied to the chamber to effect the neutralization of the acid in the cloth as it passes through the chamber.

Some defects arising in the finishing of woolen and worsted fabrics. C. S. Whewell. *Can. Textile J. 66,* 45-50 (Oct. 28. 1949).

See TTD: *6,* 564.

Some experiments in kier boiling. T. S. Gore & G. M. Nabar. *J. Sci. Ind. Res. (India) 8B,* 142-44 (Aug. 1949).

This is an account of investigations undertaken to study the efficiency of a few specially designed kier-boiling treatments in removing the waxy and fatty matter from cotton cloth and yarn preparatory to dyeing and printing.

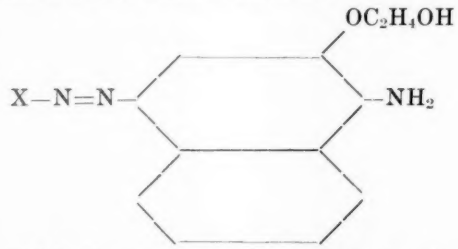
Survey of silk weighting. Allan G. Tyler. *Dyer 101,* 429-32 (Apr. 22, 1949).

See TTD: *6,* 864.

DYEING AND PRINTING E

Azo dyestuffs and method for dyeing cellulose acetate. Georges Kopp & Rene E. M. Gangneux (to Manufactures de Produits Chimiques du Nord Establissements Kuhlmann). USP 2 488 204, Nov. 15, 1949.

A process of dyeing artificial silks basically composed of one of the members of the group consisting of the cellulosic esters and ethers, which comprises the steps of applying on the fiber an azo dyestuff of the general formula:



in which X represents the radical of a benzenic amine, free from SO_3H or COOH groups and from non-substituted amino groups, diazotizing the azo dyestuff on the fiber and coupling with 2-hydroxy-3-naphthoic acid.

Cone for dyeing yarn. Robt. A. Russell (to The Russell Mfg. Co.). USP 2 489 465, Nov. 29, 1949.

A perforated cone for package dyeing of yarn is adapted to fit a winder spindle and a dye machine spindle. The bottom end of the cone is also adapted to fit the top end of an adjoining cone, thereby effecting a seal between 2 such cones when they are nested.

Contributions to screen printing. G. Torinus.

Melliand Textilber. 30, 202-05 (May 1949); *in German.*

Quite an imposing scale of shades with good fastness properties can be obtained with Rapid Fast dyes alongside Anthrasols and with the latter alone in printing mills with restricted technical equipment and even without an ager. The author gives the composition of two classes of dyes and the developing processes applied. A common process is used for both classes without steaming. The use of an ager offers advantages in printing them and makes it possible to employ them in conjunction with the Rapidazols, aniline black and Diphenylymine Black base. A description is given of finishing equipment for Rapid Fast and Anthrasol prints, which can also be used for the development of naphtholate prints, as well as of the printing of Rapidogen dyes according to the Rapidogen Developer process with Anthrasols.

Dye evaluation test paper. Anon. *Am. Wool Cotton Reptr. 63,* 10-11, 51 (Nov. 17, 1949).

Summaries are given of 2 papers presented at the AATCC convention. The first paper deals with 4 tests—exhaustion, strike, penetration, and levelling—to evaluate dyes and give information on their dye performance. The second paper discusses the dyeing of mixed acetate and viscose fabrics with vat dyes. Tannic acid and a phenol-sulfur condensate are reported to increase the pick-up of reduced vat dyes by cellulose acetate under certain conditions.

Dyeing apparatus. Leonard J. Lederer & Leonard J. Lederer, Jr. USP 2 488 208, Nov. 15, 1949.

A covering material of a vinyl chloride product is provided for reels used in dyeing apparatus.

Dyeing mixed acetate and viscose fabrics with vat colors. Piedmont Section, AATCC. *Am. Dyestuff Reptr. 38,* P816-21 (Nov. 14, 1949).

The purpose of this study was to investigate the possibility of dyeing union shades with vat dyes on fabrics manufactured from mixtures of acetate and viscose without the use of swelling agents and with little or no saponification of the acetate.

Dyeing jersey fabrics. Heinrich Schleicher. *Textil-Praxis 4,* 285-87 (June 1949); *in German.*

Woolen and wool/staple rayon jerseys of the warp- and hosiery-knit types are lightly washed in a winch, padded, rinsed, dried, and finished. Methods of washing, including some solutions containing Igepons and Igepals with added soda and ammonia, are described. A felt effect is obtained by

padding with Medialan A. Felt calendering with Appretan is also described.

Dyeing vinyl chloride fibers with basic dyes. Henry T. Neumann (½ to Leon G. Arpin). USP 2 489 537, Nov. 29, 1949.

A method of dyeing fibers essentially comprising polymerized vinyl chlorides comprising dissolving in water an alkalizing reagent constituting an alkali metal salt and a basic dye capable of being transformed to a leuco stage upon alkalization and boiling, boiling the water with the dissolved dye to form a leuco dye bath, immersing the fibers in the bath while the bath remains in its leuco state, and then removing the fibers from the bath.

DYEING WITH FAST—AVIK [Azoic, Vat, Indigosol, Khaki]—DYES. D. G. Kale. Kanpur, U. P., India, M. D. Kale, 1949.

Although he evidently had India particularly in mind in writing "a standard practical book for the benefit of the teachers, the taught, and those engaged in the dyeing trade", the book should have an appeal in any English-speaking country, not only for students but for practical mill men as well. It is written in a simple, lucid style, in remarkably good English, with a great deal of detail and many practical suggestions, some of which it would be difficult to find in any other similar work. The chapter on Khaki, for example, from both a historical and a practical standpoint is quite unique. The chapter on the fermentation vat for Indigo is also good reading. References to such modern developments as the "Pad-steam", "Abbot-Cox", "Multi lap", and "Kupensaure" processes and the "Williams Unit" indicate that the author is strictly up-to-date in his reading of the technical literature.—*Am. Dyestuff Reptr.*

Fluorescent materials applied to textile fabrics. Franz Nestelberger. PB 98 213, July 1945. *Bibl. of Technical Reports 12,* 108 (Oct. 1949). 4 p. table. Microfilm $1.25; Photostat $1.25.

Fugitive tints for nylon. Anon. *Rayon & Syn. Tex. 30,* 66-7 (Nov. 1949).

Limited tests were made of a number of dyestuffs to determine their suitability as fugitive tints for nylon yarns. Some of the dyes were permanently impregnated when the nylon was heat-set prior to removal of the tint; some dyes could not be completely removed by normal scouring procedures after the yarn had been sized with an acidic solution, and in other cases colors which had apparently been removed during scouring were regenerated when the fabric was treated with an acidic

solution. Mills are therefore advised to conduct their own experiments under actual mill conditions before adopting any tints for use on nylon. Data are given for the tests reported.

Geigy chrome steam process for dyeing nylon. Anon. *Rayon & Syn. Tex. 30,* 88-90 (Dec. 1949).

This is abstracted from a bulletin published by the Geigy Co. Procedures are briefly described for dyeing nylon garnet and staple fiber, and nylon piece goods. The method offers the following advantages: a) the greatest wet fastness obtainable on nylon particularly in heavy shades; b) lowest dyeing cost for fastness obtained; c) consistent repetition of shade with established formulations; d) adaptability to present dyehouse enclosed equipment.

HISTORY OF DYES AND DYEING IN THE BOMBAY PRESIDENCY. B. N. Phadke. Poona, India, Dastane Bros.; Home Service Ltd., 1947. 152 p. Price: Rs12.

Inclosed jig cuts dyeing costs. Frederick A. Alter. *Textile World 99,* 120-21, 204, 206 (Oct. 1949).

Small yardage dyeing has been expensive in the past. Jigs have developed from the manually operated, through tensionless jigs, pad-jigs, and underwater jigs, to continuous dyeing ranges for large yardages. The closed type of jig will handle rolls of from 50 to 1,500 yards each. It is tensionless, automatic, and can be fully controlled through instrumentation. Quick changes from one shade to another can be made; uniformity and fastness are good.

Influence of fiber diameter of dyeing. "Mellor". *Brit. Rayon & Silk 26,* 60-1 (Oct. 1949).

Viscose rayon is commercially available in sizes ranging from .3 denier per filament to a 60,000 denier monofilament. This affects dyeing in the following manner: the amount of dye needed for a given hue varies inversely as the diameter of the filament. Also the smaller the fiber diameter, the quicker the rate of dye absorption. Fiber diameter has a considerable effect on leveling, the finer filaments leveling more easily. The above fiber characteristics have been used in construction of a test to determine fine and coarse fibers.

Levelness of acid wool dyes: Application of laboratory tests to production. E. A. Leonard, G. A. Lathrop & E. P. Mersereau. *Textile Research J. 19,* 638-43 (Oct. 1949).

A quantitative method is described for evaluating the levelness of acid wool dyes. The procedure

consists of running half of a normal yarn-dye cycle and then making additions of white yarn and dye liquor equal in amount to those in the original batch. The second half of the cycle is then run, and the yarns are removed. Reflectances of the 2 dyed yarns are determined and a "levelness index" is calculated as the ratio of dye concentration on the yarn added at the mid-point of the cycle to that on the yarn started at the beginning of the cycle. It is shown that the coefficient of dye concentration variation among samples taken from a production dyeing in a Hussong machine is proportional to the "levelness index" calculated in the laboratory for the given dyestuff.

Pad dyeing baths and processes for pad dyeing textile materials. Jos. M. Kuhn & Wm. A. Bodenschatz, Sr. (to The Sherwin-Williams Co.). USP 2 488 544, Nov. 22, 1949.

A pad dyeing bath of the lacquer-in-water type having an insoluble pigment and a pigment binder in the disperse phase, and characterized by having an effective amount but not more than .1% of a soluble alginate salt dissolved in the water phase.

Practical tests for quantitatively evaluating dye characteristics and dyeing methods. Northern New England Section, AATCC. *Am. Dyestuff Reptr. 38,* P812-15, 827 (Nov. 14, 1949).

To predict the behavior of a dyestuff or dyeing process 4 determinations were used (1) exhaustion, (2) "strike", (3) penetration and (4) levelling. A description of and data resulting from each of the methods are presented.

Preparation of screen printing materials. Kurt Scholl. *Textil-Praxis 4,* 190-92 (Apr. 1949).

In the chrome-gelatin and chrome-fish glue methods of making screen printing stencils the reinforcing lacquer often does not adhere well to the gelatin or glue. When this occurs a pre-lacquer should be used. Printing gauzes are discussed and suggestions are given for stencil fitting, determination of exposure time, stencil hardening, touching-up, and maintenance of stencils. Some stencils may be reused by removing the sensitive layer and the lacquer with glycol or lactic acid. The making of negatives and diapositives is discussed and the chemicals and papers used are noted. Ozalid papers are considered in some detail; the splitting of multi-color patterns is considered briefly.

Printing of cellulose textile fabrics. Jos. Bancroft & Sons Co. Indian P. 40 428 (through *J. Sci. Ind. Research (India)*).

Printing paste comprising thermosetting resin-forming materials and a vat dyestuff in free leuco base form.

Printing oils speed up cohesion of thickening mixtures. T. N. Patrick. *Textile World 99*, 143, 222, 224 (Oct. 1949).

The cohesion of thickener mixtures results in better penetration of dye into fiber and fabric. Olive oil, whale or sperm oil may be used. The use of sulfonated oils and pine oils is discussed. The lubrication function of printing oils and the effect of sulfonated oils on the frothing of print pastes and the softening processes in print-goods finishing are also discussed.

Process for dyeing textile fibers with vat dyes. Philip H. Stott & Richard A. Shimp (to E. I. du Pont de Nemours & Co.). USP 2 487 197, Nov. 8, 1949.

A rapid continuous process for dyeing textile fibers with vat dyes comprises padding the fiber with a dilute aqueous suspension of an unreduced vat dye which does not contain a thickening agent, padding the fiber containing dye with an alkaline solution of sodium hydrosulfite for a period of from 2 to 10 seconds and at a temperature below that at which any material reduction of the dye takes place, the concentration of the alkaline solution of the sodium hydrosulfite being such that at normal vatting temperatures it will effect reduction of all of the dye in the fiber, and immediately subjecting the fiber so padded to the action of steam in the absence of oxygen for a period of from 15 to 45 seconds to effect reduction and fixation of the dye in the fiber.

Process for securing ornamental effects in textiles. Wm. P. Hall (to Jos. Bancroft & Sons Co.). USP 2 488 397, Nov. 15, 1949.

The process of imparting durable lustrous dyed pattern effects to fabrics which comprises subjecting the fabric all over to an aqueous solution of an organic base capable of combining with a diazo compound to form a dye, printing on the fabric the desired pattern with an aqueous printing solution comprising thermo-setting resin insoluble in water when polymerized, a diazo compound combining with the base to form the dye, a printing gum and a textile lubricant, drying the printed fabric to dampness, passing the dried fabric through a friction calender and heating the fabric to polymerize the resin to the water insoluble state.

Tension effects in roller printing. Anon. *Textile Mfr. 75*, 488-90 (Oct. 1949).

In the engraved roller printing technique, tension is a matter of importance in the registration of patterns and in the production of "tailed" or "jarred" effects on the back of the pieces, especially in "push through" styles.

Vat dyeing: importance of initial exhaustion rate. O. W. Clark & H. R. McCleary. *Am. Dyestuff Reptr. 38*, 828-32 (Nov. 14, 1949).

Certain exhaust properties of vat dyes were determined from Dryometer dyeings on cotton cloth. The "initial exhaustion rate," i.e., the rate of exhaustion in the first few seconds of dyeing, was calculated for each Dryometer dyeing. Results obtained from continuous reduced dyeing experiments using mixtures having various initial exhaustion rates showed that the initial exhaustion rate is more useful than equilibrium exhaust data when choosing dyes that will work well together. Other uses of initial exhaustion data are indicated.

SPECIAL FINISHING F

Acid colloids of resins. Rhode Island Section, AATCC. *Am. Dyestuff Reptr. 38*, 842-52 (Nov. 28, 1949).

This investigation was undertaken to study the application of acid colloids of various resins to textile materials. The acid colloid was formed by adding various concentrations of a given acid to the resin in aqueous solution at 70°F. Seven melamine formaldehyde and 4 urea formaldehyde resins were studied. Data are given on the effects of laboratory applications on a number of different fabrics. Formulas used on several different fabrics, methods of application, and the results of various tests are given in an appendix.

Application in finishing of hexandiol dichloromethyl ether pyridinium derivative. H. Wenderoth. *Melliand Textilber. 30*, 205-07 (May 1949); *in German.*

The article discusses the after-treatment of cellulose fibers with the pyridinium salt of hexandiol dichloromethyl ether and a simple process for its manufacture. The after-treatment increases wet strength and resistance to deterioration, at the same time reducing swelling, shrinkage and solubility in alkali without any considerable loss of elongation.

Bonding of rubber to fibrous materials. Fred S. Perkerson (to Callaway Mills Co.). USP 2 482 931, Sept. 27, 1949.

According to the present invention fibrous materials such as cotton or rayon fabrics used in

tire construction are impregnated with rubber latex containing a latex-soluble salt of polyacrylic or polymethacrylic acid followed by drying of the treated fibrous materials and the application of vulcanizable rubber compositions thereto and subsequent vulcanization.

Bonding rubber to cellulosic fibers. Edw. A. Bried (to Hercules Powder Co.). USP 2 485 136, Oct. 18, 1949.

The process of bonding a rubber to fibrous cellulosic textile material comprises contacting the cellulosic material with a material of the group consisting of an aqueous emulsion of a primary rosin amine, an aqueous solution of a primary rosin amine acetate, an aqueous solution of a primary rosin amine hydrochloride, and an aqueous solution of a primary rosin amine hydrobromine; and applying to the treated cellulosic material a rubber latex in which the rubber is selected from the group consisting of natural rubber and synthetic rubberlike diolefin polymers.

Cellulosic textiles protected against mildew. Frederick J. Meyer (to Dow Chemical Co.). USP 2 486 961, Nov. 1, 1949.

A fibrous cellulosic textile product, the surfaces and fibers of which carry from about 1 to about 5% of a material from the group consisting of 2,4′-dihydroxybenzophenone, the mono- and dichloro-derivatives thereof, the 4-methyl and 5-methyl analogs thereof, and mixtures of the compounds.

Chemical technology of wool.—IX. Mothproofing. J. L. Stoves. *Fibres 10,* 391-94 (Nov. 1949).

The 2 main types of moths (clothes and house) responsible for wool damage, their life history, and the damage they cause are described. Methods of protection are outlined which include: 1) mechanical brushing, cold storage, and fumigation, 2) insecticidal sprays, 3) permanent mothproofing, and 4) mothproofing by modifying the keratin structure. The methods of protection in category (1) include beating and brushing in order to remove the moth eggs and larvae, and storage at temperatures of 40°F. Fumigation is used to kill larvae but offers no subsequent protection to the goods. In the category of insecticidal sprays, 3 compounds, rotenone, pyrethrin, and DDT are discussed. Under permanent mothproofing the use of such chemicals as inorganic fluorides and the sodium, ammonium, or calcium salt of 2:4 dinitro-alpha naphthol or the salt of 2:4 dinitro-alpha naphthol-7-sulfonic acid are discussed. Finally, under modification of the keratin

structure, the reduction of disulfide cross-linkages followed by treatment with methylene dibromide to form stable linkages of the type $R.S.CH_2.SR$ is discussed. (See also TTD: *6,* 96, 719 and 784.)

Coating cellulosic textiles with maleic anhydride-styrene copolymer and solid polyethylene glycol. Raymond B. Seymour & Geo. M. Schroder (to Henry H. Frede & Co.). USP 2 486 804, Nov. 1, 1949.

A composition for application to cellulosic textile material to produce a substantially water insoluble coating thereon, after heating to a temperature of from 250° to 450°F, consists of an aqueous solution of a solid polyethylene glycol having an average molecular weight of from 1,000 to 7,000 and a styrene-maleic anhydride resin having a molecular weight such that a 0.2% aqueous solution will have a viscosity of from 0.5 to 50 centipoises, the latter components being present in the ratios of 25 to 65 parts by weight of solid polythylene glycol and 35 to 75 parts of a styrene-maleic anhydride.

Dimensional changes occurring in spun viscose rayon fabrics during processing on machinery used in shrinkage stabilization finishing. Phila. Section AATCC. *Am. Dyestuff Reptr. 38,* 822-27 (Nov. 14, 1949).

This investigation involved 4 types of chemical treatment: 1) urea formaldehyde, 2) melamine formaldehyde, 3) glyoxal, and 4) alkali soluble cellulose ethers in combination with formaldehyde. The program of work consisted of 2 parts: 1) laboratory work designed to picture the dimensional changes related to the effect of tension and relaxation of fabric under varying conditions of wetting, drying and steaming, and 2) dimensional changes of the fabric occurring during finishing on plant machinery. The study showed that the emphasis on desizing and preparation of the fabric and application of the chemical or resin treatment must be extended to cover the knowledge and use of tension effects of the finishing machinery used in the process.

Diolefin-nitrile copolymer bath for shrinkproofing wool. John B. Rust (to Montclair Research Corp.). USP 2 484 962, Oct. 18, 1949.

A bath suitable for shrinkproofing wool while retaining normal hand comprises an aqueous stable emulsion of a copolymer of 100% polymerization, of butadiene 1.3 and from 10 to 40% by weight of the copolymer of an acrylonitrile selected from the group consisting of vinyl cyanide and alpha-alkyl acrylonitriles in which the alkyl group con-

tains from 1 to 4 C atoms. The copolymer is present in amount to give from 1 to 25% by weight of copolymer deposition on the wool. The bath also contains a non-cationic emulsifying agent and at least 25% by weight on the copolymer of a water-soluble neutral salt of an alkali metal as conditioning electrolyte. The pH of the bath is below 7.

Durable flame resistance on rayons. Anon. *Rayon & Syn. Tex. 30,* 62 (Dec. 1949).

This is the text of the official DuPont release announcing "Erifon", a durable flame resistant chemical for rayon fabrics. Erifon is a solution of titanium and antimony salts which react with the cellulose molecules. The chemical change causes no change in the physical properties. The application of Erifon, which is done in the textile mills, is a highly skilled operation.

Factors affecting the relaxation shrinkage of knit underwear tubing, a preliminary report. Louis I. Weiner. PB 98 574, June 1949. *Bibl. of Technical Reports 12,* 192 (Nov. 18, 1949). 29 p. Microfilm $2.00; Photostat $3.75; Mimeo 75¢. QMC TSR 57.

Finishing of polyethylene fabrics. Anon. *Rayon & Syn. Tex. 30,* 61 (Dec. 1949).

This is a release issued by the Am. Viscose Corp. describing a method of stabilizing polyethylene fabrics. The process, on which patents are pending, comprises passing the fabric flat through a hot water bath under controlled conditions; wrinkles or puckers resulting from the preshrinking treatment are removed by steaming the fabric on a decating machine. Calendering may be done if desired.

Fireproofing agents in the textile industry. Textile reconnaissance report No. 31. 1948. 5 p. M. E. Heard. PB 98 485. 1948. *Bibl. of Technical Reports 12,* 191 (Nov. 18, 1949). Microfilm $1.25; Photostat $1.25. BIOS M 73.

Flame resistant materials. Raymond A. Pingree & Raymond C. Ackerman (to Sun Chemical Corp.). USP 2 488 034, Nov. 15, 1949.

A process of making flame resistant materials which comprises heating one mol of guanyl urea phosphate with 2-3 mols of formaldehyde at 40°C to 100°C until a clear, colorless, slightly viscous, water soluble condensation product is formed, and then further polymerizing by heat to hard, infusible, insoluble state after impregnation upon a textile fabric in the presence of a melamine formaldehyde resin and stearoyl oxymethyl pyridinium chloride.

Fungicidal compositions. Wm. D. Stewart & John H. Standen (to The B. F. Goodrich Co.). USP 2 485 330, Oct. 18, 1949.

A method of protecting materials which are capable of nourishing fungi from destruction by fungi comprises bringing the material into contact with a thiothiazyl ether having the formula:

$$R—S—C_nH_{2n}—O—C_nH_{2n}—X$$

where R is a thiazyl radical, X is a halogen, and n is an integer from 2 to 4.

Hydrocarbosilicon thiocyanates and articles treated therewith. Robt. M. Joyce, Jr. (to E. I. du Pont de Nemours & Co.). USP 2 485 603, Oct. 25, 1949.

This invention provides a new class of organosilicon compounds, which upon hydrolysis do not liberate a cotton-tendering acid and which provide water repellent articles in which the water repellency is conferred by these new organosilicon compounds. This is accomplished by new organosilicon thiocyanates having the general formula:

$$R_nSi(SCN)4_{-n}$$

wherein R is a monovalent hydrocarbon radical and n is an integer having a value of 1, 2 or 3. These organosilicon thiocyanates thus are hydrocarbosilicon thiocyanates containing a monovalent hydrocarbon radical joined to the silicon by a carbon-silicon bond. The hydrocarbon radicals can be saturated or unsaturated radicals, such as alkyl, alkenyl, aryl, aralkyl and cycloalkyl. The alkylsilicon thiocyanates are preferred for the purpose of imparting water repellency to textiles and ceramics. Particularly effective are the dialkylsilicon dithiocyanates, for which n in the above formula has the value 2.

Increasing laundering resistance of jute fabrics. Lumsden & Mackenzie Ltd. Brit. P. 589 151. *Textile Mfr. 74,* 193 (Apr. 1948).

A process in which fibers, yarns, or fabrics, composed of jute or of jute and other fibers, are subjected to a dry cleaning process with a suitable solvent to remove all the oils, fats and waxes, and are then subjected to a waterproofing process, in which an emulsion of fatty or waxy material in water containing a dispersion agent is employed. Fabrics so treated can stand up much better to the stresses of laundering.

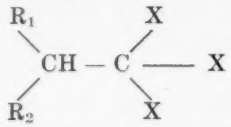
Influence of crease-resistance on textiles and its measurement. K. Quehl. *Melliand Textilber.*

30, 535-37 (Nov. 1949); *in German.*

Factors involved in making textiles resistant to creasing and the chief methods of imparting crease resistance to textiles are discussed. Methods of measuring the angle of crease are discussed and the influence of relative humidity, the weight of the load, and the period of loading and of recovery are considered.

Insectproofing. The Geigy Color Co., Ltd. Australian P. 134 091, Nov. 22, 1949.

Textile or other materials or articles are treated or prepared, so as to exhibit persistent insecticidal properties, by having incorporated in them an insecticidal compound of the formula



wherein X is chlorine or bromine and R_1 and R_2 are substituted or unsubstituted benzene rings (e.g., DDT). Porous materials such as textile fibers, yarns or fabrics, or furs, may be impregnated by immersion or spraying with solutions, dispersions or emulsions containing the compound. Other materials such as leather-cloth, linoleum, paper of strawboard, or wax polishes, paints, varnishes, stains, putty, plastic wood, plaster or drycleaning solvent are prepared by incorporating the compound during manufacture.

Insect-proofed wool. W. Lowe. Brit. P. 589 498. *Textile Mfr. 74*, 194 (Apr. 1948).

The wool is impregnated with solution of barium chloride or barium bromide and then dried. In one example a solution of 10 parts by weight of barium bromide in 1,000 parts of water was prepared, and wool was impregnated at room temperature. Surplus liquid was expressed and the wool retained 94% of its weight of solution. The wool was then dried at 175°F. and was found to be proof against moths and insects.

Method of producing products intended for improving the quality of textile materials. Boxelmaletra societe industrielle de produits, chimiques. Indian P. 40 306 (through *J. Sci. Ind. Research (India)*).

Impregnating textile with a compound obtained by condensing a carbonic acid amide with glyoxal and again condensing the product with formaldehyde.

Mildewproofing. Elmer W. Cook & Philip H. Moss (to Am. Cyanamid Co.). USP 2 471 261, May 24, 1949.

The present invention is based on the discovery that the heavy metal salts of halogenated polyphenol sulfides are particularly well suited for mildewproofing textiles, leather, cork, and the like materials. These agents are unusually effective in preventing the growth of *Aspergillus niger* and *Chaetomium globosum* on permeable organic materials of the type of cellulosic textiles, hides and leather in various stages of leather manufacture, cork and similar material subject to fungus attack. The material is mildewproofed by a content of about 0.01% to about 5% of a heavy metal salt of a halogenated polyphenol sulfide containing from 3 to 10 phenol radicals.

Phenol aldehyde-petroleum pitch-drying oil impregnating composition. Howard Snow (to Southern Friction Materials Co.). USP 2 485 327, Oct. 18, 1949.

A liquid composition for impregnating fabric to render it water and wear resistant comprises the thermosetting heat reaction products of an oil modified phenol formaldehyde resin, petroleum pitch composed of polymerized olefinic hydrocarbons and having a minimum iodine number of about 200 and a boiling range beginning at 450°F, and a drying oil; and a petroleum distillate solvent. The proportions by weight of the constituents are 1½ to 2 parts of the resin, 3 to 4 parts of the pitch, 4 to 5½ parts of the drying oil, and 1 to 7½ parts of the solvent.

Polymeric polyhydric alcohol condensation products and treatment of cellulosic textiles therewith. Dmitry M. Gagarine (to Dan River Mills, Inc.). USP 2 486 399, Nov. 1, 1949.

A method of producing a water soluble, reactive condensation product, suitable for treating textiles, comprises reacting a high polymeric polyhydric alcohol with formaldehyde in the presence of an alkaline catalyst to produce a high polymeric polyhydric alcohol methylol, adding to the methylol and catalyst a mixture of acetone and formaldehyde to produce a reaction therebetween with the formation of an acetone methylol and to produce a reaction between the 2 methylols, confining the resulting reaction solution in tightly closed pressure resistant containers in which the condensation reaction proceeds until the amount of catalyst is exhausted and the resulting condensation product is substantially neutral, is soluble in water and may be activated for treatment of textiles by the addition of a mild alkaline catalyst.

Preparation and properties of cellulose phosphates. J. David Reid & Laurence W. Mazzeno, Jr.

Ind. Eng. Chemistry 41, 2828-31 (Dec. 1949). **Composition of 2 types of cellulose phosphates.** J. D. Reid, L. W. Mazzeno, Jr. & Edmund M. Buras, Jr. *Ibid.* 2831-34 (Dec. 1949).

The first of these 2 papers reports several methods for phosphorylating cellulose. A procedure using phosphorus oxychloride and pyridine yielded cloth which was substantially flame- and glow-proof but so weakened that it was impractical for use in garments. Much of the degradation was avoided in samples prepared by the urea-phosphoric acid method of phosphorylation. Incorporation of cellulose phosphates into a successful flameproofing formula reduced afterglow, but impractically large amounts were required to effect complete extinction of glow. The second paper reports evidence that the combined phosphorus in cellulose phosphates prepared by the urea phosphate method is entirely a monosubstituted phosphate ester, while that prepared by phosphorus oxychloride-pyridine treatment contains approximately 23% disubstituted ester. The latter also contains chlorine, probably bound directly to glucose carbon, and a small amount of nitrogen, presumably due to pyridine.

Process for treating organic substitution derivative of cellulose textile materials. Camille Dreyfus, Geo. W. Seymour & Geo. C. Ward (to Celanese Corp. of Am.). USP 2 488 587, Nov. 22, 1949.

Process for improving the ironing properties of organic substitution derivative of cellulose textile materials and articles made therefrom, which comprises treating the same with an aqueous solution of boric acid, drying the material, and then subjecting the so treated material to a heat treatment at a temperature of at least 110°C under a pressure of at least 2000 lbs per sq in.

Scrooping composition. Saul Kaplan (to Onyx Oil & Chemical Co.). USP 2 482 917, Sept. 27, 1949.

A scrooping composition in the form of an oil-in-water emulsion comprising a continuous phase of an aqueous solution of a film-forming organic colloid and a dispersed phase including butoxyethyl stearate, the butoxyethyl stearate being present in an amount effective to impart scroop to rayon and silk when treated with the composition.

Shrinkage control and durable mechanical effects with urea-formaldehyde resins. Leonard Shapiro. *Rayon & Syn. Tex. 30*, 58-60 (Sept. 1949).

The uses of urea-formaldehyde resins in shrinkage control, for producing durable glazed finishes, embossed effects and water repellency are considered.

Treated textile and process of making. Ernst Zerner & Peter I. Pollak (to Sun Chemical Corp.). USP 2 489 473, Nov. 28, 1949.

A process for waterproofing a material comprising the steps of impregnating the material with a product obtained by heating amides of fatty acids, mixtures of fatty acids and nitriles of fatty acids, chloromethylating the above product and reacting the chloromethylated product with tertiary amines.

Treating fabrics to prevent shrinkage. V. E. Haighton Ltd. Brit. P. 589 557. *Textile Mfr. 74*, 194 (Apr. 1948).

Describes a method for imparting antishrink properties to mercerized or unmercerized fabrics in the wet state. The fabric is plaited into a wagon and allowed to remain there to allow the fibers to swell to their full extent. The fabric is then drawn from the wagon, fed to a short pin stenter, without longitudinal tension, and over heated refractory material. From the stenter the fabric is conveyed through a drying chamber by a creeper dryer and on emerging is thoroughly dry. The dry fabric is passed in contact with a steam heated cylinder by means of an endless blanket to remove any creases and is plaited into a further wagon.

Treating paper or textiles. Imperial Chemical Industries of Australia & New Zealand. Australian P. 122 783, May 4, 1944.

Paper or textile fibers are coated with synthetic resin containing the group $CH_2{=}C$: by applying thereto one or more monomeric readily polymerizable compounds in the form of a solution or aqueous dispersion and then polymerizing the monomeric compounds thereon. To effect speedy polymerization a catalyst is used, and atmospheric oxygen is diminished or entirely suppressed.

Treatment of nylon webbing to increase resistance to abrasion. C. A. Willis. PB 98 652. June 1947. *Bibl. of Technical Reports 12*, 191 (Nov. 18, 1949). 8 p. photos, table. Microfilm $1.25; Photostat $1.25. AAF TSEAM M5287.

Specimens of nylon webbing, Type VIII, were tested for resitance to abrasion. Untreated webbing is very susceptible to abrasion and loses approximately 39.6% of its tensile strength after being abraded 10,000 strokes on each side. Results

indicate that webbing treated with Merlon BR is superior to treatments of Merlon SP and Methacrol NH in increasing the resistance of the webbing to abrasion. Merlon BR-treated webbing loses little or no tensile strength after being abraded 10,000 strokes.

Treatment of textile materials. Camille Dreyfus, Geo. W. Seymour & Geo. C. Ward (to Celanese Corp. of Am.). USP 2 488 588, Nov. 22, 1949.

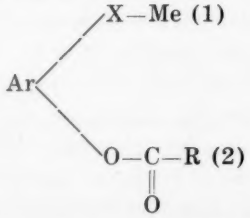
Process for improving the ironing and heat-resisting properties of textile materials comprising filaments and fibers having a basis of a non-thermoplastic textile material, which comprises applying a solution of boric acid to the materials, drying the treated materials and then subjecting them to a heat treatment at a temperature of at least 110°C under a pressure at least 2000 lbs. per sq. in.

Treatment of wool and the like. Peter Alexander & Jas. W. Bell (to Wolsey Ltd.). USP 2 485 250, Oct. 18, 1949.

The treatment of woolen materials to reduce their tendency to shrink and to increase their resistance to abrasion is claimed. The process comprises treating the material with a solution of methylol urea containing at least 25% of methylol urea, squeezing the treated material, drying, and curing the material at a temperature of be-80° and 135°C for between one and 5 minutes. The cured material is then treated with a solution of a strong mineral acid to polymerize the methylol urea, squeezed, rinsed, dried, and cured at a temperature of between 90° and 135°C for between one and 5 minutes.

Water-repellent fibers. The Cravenette Co. Brit. P. 589 649. *Textile Mfr. 74,* 195 (Apr. 1948).

Cellulosic or protein fibers or fabrics are rendered water repellent by applying to them a solution of a compound of the formula



Where Ar is a benzene or naphthalene nucleus, R is a saturated aliphatic chain with at least 7 C atoms. X is (—COO)— or (—SO_2O)—, Me is an alkali metal, and groups (1) and (2) are in adjacent or opposite positions of the same benzene ring. The material being treated, is then baked.

Wool shinkage control by resin application. II-III. R. W. Moncrieff. *Textile Mfr. 75,* 438-43 (Sept. 1949); 484-87 (Oct. 1949).

II—This is a review of the recent technical and patent literature pertaining to the use of thermosetting resins, particularly the alkylated methylolmelamine types, to prevent felting shrinkage of wool. Although many of the alkylated resins such as the ethylated, butylated and laurylated types have been used for this purpose, the methylated compounds are preferred because of the greater solubility of the precondensates. 10% of resin solids applied on a pad-mangle from a water solution, dried at 220°F and cured at 300°F in the presence of an acid releasing catalyst such as diammonium hydrogen phosphate has been found to produce effective shrinkage control without impairing the hand of the fabric. III—Effective control of felting shrinkage in wool may be obtained by applying 1 to 3% of a silane such as dichlorodimethyl silane from organic solution. As a result of the reaction of the silane with the water in wool a siliceous resin is deposited on the wool. Applications of silane greater than 3% were found to decrease the abrasion resistance of the wool markedly. Another method for controlling shrinkage which yields a fabric with a soft hand consists of treating the fabric with an alkaline solution of wool substance and precipitating the wool with an acid. (Part I see TTD: *6,* 877.)

TESTING AND MEASUREMENT G

Determination of maturity of raw cotton. K. Vogler. *Textil-Rundschau 4,* 75-81 (Mar. 1949); *in German.*

The development of the cotton fiber is discussed and microscopical methods for determining the degree of maturity are reviewed. The Goldthwait dyeing technique was tested and its application to raw cotton, staple, and cotton yarns is illustrated in color.

Determination of the fullness of rayon yarns. Vereinigte Glanzstoff-Fabriken A. G. PB 74 235t6, 1949. *Bibl. of Technical Reports 12,* 131 (Oct. 1949). 19 p. graphs, tables. Translation of PB 74 235, Micro FIAT D 300, Frames 9678-9686. Price $14.75. (Available from Research Information Service, 509 Fifth Ave., New York 17, N. Y.)

Determining proportion of silk in silk and nylon mixtures. Mlle. Jafflin. *Bull. de l'Institut Textile No. 13,* 19-21 (Aug. 1949); *in French.*

A method of determining the proportion of silk in

silk and nylon mixtures is described. The method makes use of the solubility of silk in cupri-ethylene-diamine in well-defined concentration and of the total inertia of nylon to this reagent.

Effect of variations in grist and twist on the strength of yarn in tests to compare the spinning quality of jute samples. B. K. Chakrabarti. *Indian Textile J. 59,* 1062-74 (Sept. 1949).

First using a theoretic approach to the problem the author shows mathematically the effects of different variations in grist and twist on the quality ratio and strength of jute yarn. Then by a series of actual experiments verifies and compares certain constants derived empirically. Finally equations are derived which permit prediction of yarn strength or quantity ratio for any desired value of grist and twist.

Evaluation of detergents for textile cleaning. Wm. P. Utermohlen, Jr. & Mary E. Ryan. *Ind. Eng. Chemistry 41,* 2881-87 (Dec. 1949).

Methods of evaluation for washing procedures on artificially soiled cotton cloth are reviewed. The method of estimating soil removal by linear proportionality to surface reflectance, frequently employed with carbonaceous soils, is demonstrated to be in error when applied to cloth soiled by black iron oxide, a pigment which permits chemical analyses. One of the Kubelka-Munk color equations, applied to iron-oxide-soiled cloth, gave values of absolute soil content which agreed with analyses better than the linear reflectance method; but the agreement was still poor for some of the detergent systems studied. Chemical measurements of residue of analyzable pigment on washed cloth is suggested for determination of absolute soil removal by detergents when surface appearance alone is not the important criterion. All laboratory procedures, however, should be screening tests preliminary to full-scale testing.

Flexural fatigue testing of rayon yarns. Vereinigte Glanzstoff-Fabriken A. G. PB 74 235t4, 1949. *Bibl. of Technical Reports 12,* 131 (Oct. 1949). 17 p., tables. Price $16.50. (Available from Research Information Service, 509 5th Ave., New York 17, N. Y.)

METHODS OF TESTS ON FIBER, YARN AND CLOTH AT THE TECHNOLOGICAL LABORATORY. D. L. Sen. Bombay, Indian Central Cotton Committee Technological Laboratory, 1948. (Technological Bull. Series A, No. 69.) 44 p. Rs1.

This is a revised edition of an earlier publication

(Technological Bulletin, Series A, No. 25) "Testing of Indian Cottons for Quality at the Technological Laboratory." The present work describes ginning tests, moisture tests, chemical tests, spinning tests, yarn tests, and cloth tests as used with Indian cottons.

New moisture determination method. *Silk & Rayon 23,* 950 (July 1949).

The rapid determination of moisture in cellulose derivatives, carbon disulfide, and many other reagents used in the production of rayon, takes advantage of a recent principle. It is dependent on the concentration of water in a liquid which bears a definite relation to the humidity of air with which it is in equilibrium at any given temperature. Therefore by measuring the moisture of the air above the liquid its moisture concentration can rapidly be determined.

Preferential wetting of cotton fabrics. Irving Reich & Foster Dee Snell. *Ind. Eng. Chemistry 41,* 2797-2800 (Dec. 1949).

One of the component factors in detergent action is preferential wetting of the fabric at its interface with the soil, which is usually oily. To measure this property a test was devised, involving displacement of oils from the fibers and measuring the sinking time for a fabric sample to pass through a free oil-water interface. Preliminary results showed molecularly dehydrated phosphates to be much more effective than other salts in reducing sinking time. Highly polyvalent ions appear to be responsible, as results on other compounds show. Synthetic detergents of the alkyl aryl sulfonate group along with molecularly dehydrated phosphates gave longer sinking times than the phosphates alone, suggesting that the good detergency of the combination is due to effects at the fiber surface rather than the oil-water interface. The method described is considered useful, but requires further development to improve its precision.

Strength relationships in yarns and fabrics. Günther Satlow & Hugo Griese. *Textil-Praxis 4,* 276-79 (June 1949); *in German.*

A formula for the calculation of fabric strength as a multiple of yarn strength is given. Included in the formula is F, a variable, which is a function of yarn material, fabric structure, and method of weaving. Some values of F for different materials, weaves and counts are given. F may be less, equal to, or greater than unity; it is given separately for warp and filling.

Clothing and fabrics G 1

Cotton-jersey shrinkage varies with construction. Hazel M. Fletcher. *Textile World 99*, 139, 149 (Oct. 1949).

Lack of dimensional stability in knit goods can be allowed for if the fabric shrinks the same amount in both directions. Laundering procedures and fabric construction both affect the amount of dimensional change. A series of tests of fabric made with different courses per inch indicates the point at which equal shrinkage takes place. Laundry tests are graphed to show the results of conditions and manner of laundering and drying.

Diagonal sectioning technic for studying fibers. M. R. Pesce & A. S. Wrigley. *Textile Research J. 19*, 646-48 (Oct. 1949).

By using a diagonal sectioning technique, in which the fabric specimen (embedded in methyl methacrylate) is sliced in a plane tilted at a small angle to the plane normal to the warp or filling direction, it is possible to obtain, with only one section, an uninterrupted sequence of views through and between alternate yarns.

Modification of method prescribed in specification JAN-C-173 for determining fungicidal effectiveness of coating material samples. Mary P. Gauvey. PB 98 074, Feb. 1948. *Bibl. of Technical Reports 12*, 154 (Nov. 18, 1949). 7 p. Microfilm $1.25; Photostat $1.25.

In an attempt to devise a more conclusive test method for determining fungicidal effectiveness of coating materials, a method based on mechanical measurement of cotton seine twine was used. The twine samples, after being dipped in fungicidal lacquer and varnish, were preconditioned, placed in culture media, and innoculated with mixed fungus spores. At the conclusion of the test period, tensile strength tests were made on the samples.

Permeable protective fabrics LX: Stabilization of fabric with calcium carbonate. E. I. duPont de Nemours & Co., Inc. PB 98 529. Oct. 1945. *Bibl. of Technical Reports 12*, 191 (Nov. 18, 1949). 78 p. tables. Microfilm $3.50; Photostat $10.00. OSRD 6090.

The performance of calcium carbonate products such as Atomite, Wyandotte Regular, Whitcarb-R, Gold-Bond, and others, as a fabric stabilizer for CC-2 impregnated protective clothing was evaluated. On the basis of tests carried out on both miniature and full-scale bales, clothing containing $CaCO_3$ as stabilizers was found to be intermediate, between that containing no sabilizer and that stabilized with 10% zinc oxide, in its ability to withstand degradation resulting in loss of strength during long-term storage under adverse conditions.

Specificity of microorganisms for materials. Emma F. Little. PB 98 592. Sept. 1947. *Bibl. of Technical Reports 12*, 191 (Nov. 18, 1949). 30 p. photos, table. Microfilm $2.00; Photostat $3.75. AAF TSEAM M5285. Printed portion of this report will not reproduce well.

Experiments were run to develop an auxiliary microbiological method of testing the resistance of fabric to fungi. Microorganisms used were *Memnonielle echinati*-SN-3, *Chaetomium globosum* USDA 1042.4, *Myrothecium verrucarria* USDA 1334.2, *Trichoderma sp.* ATCC-9645, *Aspergillus terreus* PQMD-82j, and *Gliomastix convoluta* PQMD-4c. Fabrics used included mercerized cotton airplane cloth, parachute nylon and silk, white worsted serge, knitted wool cloth, Fortisan acetate rayon, and saponified acetate cloth for parachutes. Details of procedure and results are tabulated.

Instruments and instrumentation G 2

Better production; Section 1. Instruments and controls. Anon. *Southern Power & Industry 67*, 63, 65, 66 (Oct. 1949).

A series of case studies covering several industries, 3 of which cover the textile industry: 1) Automatic controls have reduced elevator maintenance at Bibb in Columbus, Ga. 2) Springs Cotton Mills maintains a constant ratio of caustic to silicate to peroxide in a peroxide saturator by means of a 3 cylinder "gang" pump developed specially for the job. 3) Automatic controls to feed bleaching chemicals continuously in a pre-set, but adjustable, ratio are made by Fisher and Porter Co., and used in several southern bleacheries. Diagrams of some of these and short descriptions of all of these cases are given.

Cord flexing machine. Chester B. Budd & Lewis Larrick (to B. F. Goodrich Co.). USP 2 488 761, Nov. 22, 1949.

This invention provides an apparatus for imposing cyclic bending stresses on a flexible filamentary or strip article substantially without rubbing action on the article for the purpose of testing the resistance of the article to bending fatigue. The apparatus comprises a supporting structure, a set of rollers, means for mounting the rollers for individual rotation about spaced-apart axes

and for receiving a loop of the article about the rollers, means for rotating the mounting means and rollers as a group about an axis intermediate the spaced-apart axes and means comprising elements carried by the mounting means and moveable along an adjacent surface of the supporting structure with the elements in engaging relation with the adjacent surface for effecting drive of the rollers about their own axes at a uniform speed of rotation under uniform speed of rotation of the mounting means relative to the supporting structure. This invention is an improvement in testing apparatus of the kind shown and described in the Edw. T. Lessig Patent 2 291 086, issued July 28, 1942, and entitled "Apparatus for testing filamentary or strip articles."

Determination of stiffness of fabrics. Rudolf Mönch. *Textile-Praxis 4,* 178-79 (Apr. 1949).

A device for measuring the stiffness of fabrics consists of a gage made of a protractor attached to a spring clamp. A test strip 1 cm wide is gripped by the clamp and the angle of bending under the weight of the strip is measured. The procedure of testing is described and the device is illustrated diagrammatically.

Dynamically balanced fatigue tester for rayon tire cord. W. E. Roseveare & R. C. Waller. *Textile Research J. 19,* 633-37 (Oct. 1949).

A fatigue tester for dipped and undipped tire cord has been designed which makes use of out-of-phase stretching and relaxing of 2 cords against a weight hung on their lower ends. The design permits the use of a high stroke in a lightweight machine which provides a reasonably short life without resort to excessively high temperatures or loads. It was found that the fatigue life of rayon cords is higher than that of cotton cords at high loads, but the order is reversed at low loads.

Examination of textile fibers by the "dispersion staining" method. P. C. Douglass & G. C. Crossmon. *Textile Research J. 19,* 644-46 (Oct. 1949).

Using an ordinary compound microscope set up for dark field illumination, textile fibers may be identified by the color produced when the sample is mounted in a liquid of high dispersion which has a refractive index near that of the fiber. The technique is particularly valuable for fibers which are classified as striated or microscopically structureless.

Fluorometric method for estimation of benzil in impregnated cloth. Saml. Sass & Jerome Goldenson. PB 98 509. Aug. 1949. *Bibl. of Technical Reports 12,* 192 (Nov. 18, 1949). 11 p. graphs, tables. Microfilm $1.75; Photostat $2.50. CC TCR 41.

Trace amounts of benzil impregnated in cloth can be determined satisfactorily by a new method which consists in heating the sample with m-diethylaminophenol at 100°C and measuring the fluorescence of the product. Benzil has been found to be an effective miticide and has been considered a valuable impregnant for this purpose.

Mysterious dial (of the lea testing machine). M. C. Mehta. *Indian Textile J. 59,* 1059-61 (Sept. 1949).

The author discusses a tensile testing machine used to break yarns, and emphasizes the fact that the calibrations on the dial of this instrument are not uniformly spaced, but are related as the cosine of the angle subtended. He shows the calculations and gives the reasons why the spacings are as mentioned.

New sliver tester spot lights quality. C. Mallard Bowden. *Textile World 99,* 130-31, 208, 212 (Oct. 1949).

Evenness testing of sliver, roving, and yarn is being done on an organized basis in some mills. Parkdale Mills uses the Uster tester. The different settings of material feeds, paper feeds, and ranges of scales for this instrument are explained. Most mills develop their own standards, as there are none in general use. Illustrated with pictures of the equipment, charts, and tables of some tests run.

Photographic engineering in textile research. Henry M. Lester. *Can. Textile J. 66,* 56-62 (Oct. 11, 1949).

Photographic engineering can be used advantageously in helping to solve problems encountered in textile manufacturing. The use of photomicrographic technics, stroboscopic illumination, time-telescoping and time-extension principles and the high-speed camera is discussed.

Strain-gage tests reveal beam-stress data. D. C. Bender. *Textile World 99,* 133, 135, 151 (Oct. 1949).

Strain gages were used in the designing of section beams with aluminum heads and magnesium barrels. Heads spread as much as .05 inches under a full load of nylon yarn. Pressure reached as much as 7,000 psi on an all-aluminum tricot beam of nylon. Four charts with several curves each show the amounts of pressure at different points

on a beam at different stages of being filled.

Testing of a running thread. W. E. Baltz. *Melliand Textilber. 30,* 504-6 (Nov. 1949); *in German.*

The author describes a new device and several testing methods for continuous measuring and recording the load, the elongation and the wear resistance of a running thread. All cylinders are gear-driven.

Textile fibers under the microscope. Andreas Agster. *Textil-Praxis 4,* 226-27 (May 1949); *in German.*

Brief descriptions of 14 textile fibers, from cotton to perlon and nylon, are given in connection with outline drawings of the longitudinal and cross-sectional views of the fibers.

Textile instruments. XIII—Moisture control. R. W. Moncrieff. *Fibres 10,* 395-98 (Nov. 1949).

This series is continued with a discussion of various moisture meters available on the open market. One meter mentioned operates on the principle that when a sample containing moisture is exposed to infrared radiation it will dry. The moisture content is indicated directly on a suitable scale. Two moisture meters for determining the moisture content of wool are also mentioned. One operates on a resistance principle and the other depends on a measurement of the capacity and the power factor of the wool-moisture mixture. The fourth instrument described is one which depends on the change in the direct-current resistance of an electrical circuit when the moisture content of a fiber is varied. (See also TTD: *6,* 971.)

Ultra-microtomy by a new method. Sanford B. Newman, Emil Borysko & Max Swerdlow. *J. Research Natl. Bur. Standards 43,* 183-99 (Sept. 1949).

Polymerization of *n*-butyl methacrylate monomer is used as a rapid and simple means for embedding fixed biological material. The solid resin provides an optically clear matrix for cutting very thin sections, one at a time, with a slightly modified conventional rotary microtome. Advance of the embedded specimen toward the knife is obtained from the thermal expansion of a brass specimen holder. These ultrathin sections have uniform thickness, large area, and integrity of tissue structure. They are suitable for producing transmission images at the higher magnifications of the conventional light, phase-contrast, and electron microscopes. Metallic shadowing of the sections provides greater contrast as well as a 3-

dimensional aspect to the structural details of the tissue. Micrographs and bibliography are presented.

Ultra-thin sectioning evolved for fiber study. Anon. *Textile World 99,* 141, 206, 208 (Oct. 1949).

The National Bureau of Standards method for cutting laboratory specimens used a conventional microtome with the specimen embedded in a clear plastic and held in a special plug that fits in a brass block. Carbon dioxide gas is allowed to enter the specimen chamber and cool it. Subsequent warming of the brass block causes expansion and the specimen is pushed outward by molecular expansion, then sliced thin. After cutting, sections are prepared for the electron microscope. Sections may be cut to a thickness of 0.10 microns.

TEXTILE MILLS H

Anti-friction bearings pay dividends on textile machinery. Carl A. Berg. *Lubrication Engineering 5,* 273-4 (Dec. 1949).

With increasing demands for high and uninterrupted production, textile mills, as well as machinery manufacturers, are now adopting ball and roller bearings. With such bearings, true economy calls for the use of correct lubricants which, though expensive, pay off in reduced labor and shutdowns for lubrication. Grease lubrication reduces both maintenance and product contamination. Current problems in this field are friction oxidation, only partly combatted by zinc oxide and lithium compounds, and high temperatures in textile drying, thus far practically unsolved.

Better production; Section 3. Power and steam generation. Anon. *Southern Power & Industry 67,* 74-6 (Oct. 1949).

A series of case studies covering several industries, 3 of which apply to textiles: 1. The Carol-May Finishing Co. has reduced costs by reclaiming the heat in the steam exhausted by the preboarding machines. The equipment used to do this is described in detail and illustrated. 2. (by Robt. J. Tucker, Jr.) The Roanoke Mills Co. installation of boilers, stokers, controls, and dust collectors is described in some detail. 3. (by Ralph P. Hanes & W. O. Sprinkle). The modern steam generating unit recently installed at Hanes Dye and Finishing Co. consists of a Series FF16 Babcock and Wilcox integral-furnace boilers. Air heater, soot blowers, dust collectors, forced and induced draft fans, meters and controls are discussed. The coal silos and coal handling are also described.

British textile machine show. Anon. *Am. Wool Cotton Reptr. 63,* 36 (Dec. 1, 1949).

Highlights of the British textile machinery exhibition, including an automatic doffer for ring spinning frames, a pirn winder attachment, a "T" model loom, etc., are briefly discussed.

Company gains five ways with collapsible basket pallets. Jas. F. McLaughlin. *Factory Management & Maintenance 107,* 92-3 (July 1949).

Substitution of collapsible wire mesh basket pallets for the traditional canvas baskets in yarn handling for carpet manufacturing brought the following advantages: weighing operations in the winding room require ¼ the manpower; storage area handling requires ¼ the manpower; handling operations are cleaner, with less chance of confusing yarn colors, lots, or types; inventory-taking now occurs over a week-end, with less than 15% of the man-hours formerly needed during a week's shutdown; checking of perpetual inventory to assure that yarn needed for a run is on hand is now a matter of a few minutes to a few hours.

Continuous treatment of textile wastes. Robt. E. Oberholtzer. *Textile World 99,* 103-07 (Oct. 1949).

This plants treats 250,000 gallons of waste water a day by the use of bar racks, equalization tanks, acid mixing tank, flocculating and settling tanks, neutralization mixing tank, and more flocculating and settling tanks. Water is then discharged to the river. Many pictures, a flow diagram, tables of construction data, cost data, and a table showing results of analysis all furnish important information about the process.

Electronic controls remove processing guesswork. Chas. W. Bowden, Jr. *Textile World 99,* 124-25 (Oct. 1949).

Many electronic controls are necessary and are being used. Descriptions and diagrams of the following 6 are included in this article: 1) Brown Electronik potentiometer; used to measure and control moisture, pH, etc.; 2) Moist-O-Graph used to measure continuously the moisture content of yarn on the slasher; 3) electric-pneumatic system for controlling the level of size in the size box; 4) pH control in dyeing, bleaching, and finishing accomplished by an electronic control in combination with pneumatic flow control; 5) low range Radiamatic controls surface temperature of yarn or cloth running through a dryer; 6) warp yarn stretch control indicated and recorded by an

electric device that utilizes the output of 2 tachometer generators.

Engineering in textiles. Anon. *Am. Wool Cotton Reptr. 63,* 9-10 (Dec. 8, 1949).

Summaries of talks on the need of engineering in the textile industry, presented at the Am. Society of Mechanical Engineers meeting, are given.

Lapping device. Cyril M. Croft & Frederick G. Dodge (to Celanese Corp. of Am.). USP 2 485 705, Oct. 25, 1949.

In a device for winding fabrics on to a driven take-up roll, means for shifting the fabric laterally during the winding thereof comprising a guide roll movable by the moving fabric, a shaft for the guide roll, bearings for journaling the shaft, a support for the bearings, a pivot intermediate the bearings on which the support is mounted, and means actuated by the rotation of the guide roll for rocking the support and guide roll in a horizontal plane, the latter means including a worm fixed to and rotatable with the shaft, a worm gear meshing with the worm and an eccentric link operably connected to the worm gear.

Machine for mounting seals on bale straps. Chas. E. Hendrixson, Jr. & C. W. Cox (to Am. Viscose Corp.). USP 2 489 377, Nov. 29, 1949.

A machine for cutting bale straps, applying sealing bands thereto and crimping them on each side of the bands.

Make your plant a safe, pleasant place to work. Alonzo Flack. *Factory Management & Maintenance 107,* 68-93 (Nov. 1949).

Methods of improving employee morale and efficiency by adequate provision for health and safety, eating facilities, sanitary facilities, work furniture, recreation, and various employee aids are discussed. Among the 36 illustrative cases are Crompton and Knowles Loom Works (vision testing program), Magee Carpet Co. (work music), Botany Mills (employee library), and Fulton Bag and Cotton Mills (child nursery).

Measured motion times the job faster. C. Mallard Bowden. *Textile World 99,* 122-23, 212, 214 (Oct. 1949).

Methods-Time Measurement seems to have real possibilities in the textile field. It employs predetermined unit times in "time-measurement units", each T.M.U. being equal to .00001 hours. A simple example is given showing how the system works.

New handling system will pay for itself in 15 months. T. W. E. Bowdler. *Factory Manage-*

ment & Maintenance 107, 132-33 (Nov. 1949).

A new chain conveyor system saves 480 man-hours of direct labor per week, handling 60,000 pounds of wool yarn each day. It serves steaming, cone-winding, and doubling departments and has 7 drop stations, 2 with weighing conveyors. A 2-way communication system coordinates operations, and each station has its own control button.

Safety controls accident and insurance costs. Claire Burch. *Textile World 99*, 147, 218, 220, 222 (Oct. 1949).

Through the help of consultants, Talbot Mills have reduced their insurance premium debit from 75% to 20%. Group discussions and training classes for foremen brought out the psychological causes of accidents. A rotating safety committee makes monthly inspections. Human failures were thought to be much more important than mechanical failures; therefore the program was slanted in that direction.

Textile winder and let-off drives. A. T. Bacheler. *Rayon & Syn. Tex. 30*, 57-8 (Nov. 1949); 52-4 (Dec. 1949).

This is a discussion of electric drives for winders and let-offs, and is concerned with the requirements of various textile operations and the circuits and controls that have been developed to meet them.

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Autoxidation of alkali cellulose—Part II. D. Entwistle, E. H. Cole & N. S. Wooding. *Textile Research J. 19*, 609-24 (Oct. 1949).

The previous paper in this series (see TTD: *6*, 888) discussed the uncatalyzed autoxidation of alkali cellulose and suggested that the reaction proceeds via a chain mechanism involving transient free radicals. The present paper describes the effect of certain transition metal catalysts on the kinetics of oxygen absorption and cellulose depolymerization. It is shown that the reaction is subject to catalysis by substances which generate free radicals and by the presence of certain other autoxidizable substances. Silver and gold compounds behave as inhibitors, as do some typical organic antioxidants.

Catalytic hydrogenation of cellulose to produce oxygenated compounds. Hamit H. Gürkan. USP 2 488 722, Nov. 22, 1949.

This invention provides a method for the preparation of alcohols, glycols and hydroxyketones from cellulose which comprises dissolving cellulose in Schweizer's reagent, subjecting the resulting cellulose solution to hydrogenation at a temperature between about 140°C and 190°C and under substantial pressure for a period of about 2 hours to form a co-precipitate of cellulose and metallic copper, in which the copper is uniformly dispersed through the body of the cellulose, subjecting the co-precipitate to hydrogenolysis for a period of hours under a pressure of at least 700 lbs. per sq. in. in the presence of water and hydrogen and at a temperature between about 240°C and 322°C to convert the cellulose into liquid and gaseous products containing substantial yields of alcohols, glycols and hydroxyketones and separating the conversion products.

Cellulose studies—XI. Acetal type of methoxyl groups in methanolyzed celluloses. P. C. Mehta & Eugene Pacsu. *Textile Research J. 19*, 625-30 (Oct. 1949).

Native cotton and commercial viscose rayon were degraded by using a saturated solution of hydrogen chloride (about 43%) in methanol at 0°C. It was found that 8.1 bonds in native cotton suffered methanolysis during the first 6 hrs. of the reaction, whereas in the ensuing period of 666 hrs. only 1.6 bonds became cleaved. The results indicate that the initial reaction comes to a practical standstill after about the same stage of degradation has been reached as in the mild hydrolytic scission of the same materials (D.P.-250 for cotton, and D.P.-60 for viscose rayon). A study of the rates of hydrolysis of the methanolyzed products supplied chemical proof for the presence of acid-sensitive, open-chain glucose residues which were previously suggested in a new formula for cellulose. (See also TTD: *5*, 551.)

Fine structure of cotton fibers from density measurements. Helmut Wakeham. *Textile Research J. 19*, 595-605 (Oct. 1949).

The apparent densities of cellulose fibers in different liquids gives information concerning inner fiber structure which may be useful in characterizing certain desirable properties of cotton fibers. Interpretation is made of some experimentally determined densities of cotton and rayon fibers in benzene and dioctyl phthalate—2 liquids differing greatly in molecular dimensions—and in mercury, a nonwetting liquid. In the last case, the "over-all density" of a fiber, defined as the average density of all material within the outer wall

of the fiber, is determined by a method utilizing a mercury-pressure volumenometer. In the case of the wetting liquids, higher densities were obtained with benzene which has the smaller molecule; this indicates that the fibers have pore spaces which in size approach the dimensions of the molecule. When the cotton fibers are cut into short sections, about 1 mm long, more of these pores and intrafiber channels are open to the liquid medium; a higher density is, therefore, obtained for the cut fibers than for the whole fibers. Pore-space values within the fiber are calculated and compared with values obtained by other methods. The significance of these observations in the consideration of fiber structure is discussed.

Hypochlorite oxidation of cellulose in presence of mixtures of certain vat dyes—Part II. G. M. Nabar & J. A. Rathod. *J. Sci. Ind. Research (India) 8B,* 154-56 (Sept. 1949).

The present investigation gives an account of the experiments carried out, with the systems described in Part I (see TTD: *6,* 716), over a wide range of hydrogen ion concentration of the hypochlorite solutions. Mixed dyeings from the 2 dyes were prepared as described previously and these were treated with buffered hypochlorite solutions (both in the reduced and unreduced state). The oxygen loss from the solutions was calculated and the oxidized dyeings were examined for their cuprammonium fluidity. The results show that with a decrease in pH of the hypochlorite solution, the influence of Ciba Blue 2B on the accelerating action of Cibanone Orange R becomes less and less pronounced.

Influence of acids, salt solutions and heat on the degree of polymerization and swelling of synthetic cellulose fibers. Vereinigte Glanzstoff-Fabriken A. G. PB 74 235t3, 1949. *Bibl. of Technical Reports 12,* 131 (Oct. 1949). 22 p. tables. Price $20.00. (Available from Research Information Service, 509 5th Ave., New York 17, N. Y.)

Investigations of the fundamental chemistry of cellulose and its derivatives. (California Inst. of Tech.). Richard M. Badger. Mar. 1-May 31, 1947. PB 98 613, June 1947. *Bibl. of Technical Reports 12,* 190 (Nov. 18, 1949). 11 p. Microfilm $1.75; Photostat $2.50. Quarterly progress report No. 3 contract N6 ori-102.

The progress of investigations on the fundamental chemistry of cellulose and its derivatives is reported. Electron microscope investigations

have been continued and new procedures are being tried in an attempt to increase the capacity of the method for the study of very small particles. The light scattering method of studying polymer solutions has been started and studies of polydispersity by fractionation and other procedures have begun.

Note on the anisotropy of cellulose acetate fibers. J. M. Preston & others. *J. Soc. Dyers Colourists 65,* 483-85 (Sept. 1949).

An examination was made of the anisotropies of some cellulose acetate fibers, and of cellulose fibers regenerated from them, using birefringence, dichroism, and swelling techniques. Comparisons of the cellulose fibers and the corresponding cellulose acetate fiber showed that the former have comparable but somewhat larger anisotropies than the latter, accounted for possibly by the changes in orientation during hydrolysis.

PHYSICS AND CHEMISTRY OF CELLULOSE FIBERS. P. H. Hermans. New York, Elsevier Publishing Co., 1949. 534 p. Price $9.50.

The author of this book has for 15 years been a leading chemist in the European rayon branch of the textile industry, and is director of the Laboratory for Cellulose Research of the Algemeene Kunstzijde Unie, N. V., at Utrecht, The Netherlands. Comprehensive treatment is given the results and views of the scientific rayon research which seem to be fundamental for advanced study in basic thought and research on rayon. Space is devoted to the processes of solution and swelling in the light of latest physicochemical ideas, while avoiding colloid-chemical terminology. The first 155 pages deal with the structure of rayon, the second 162 pages with general properties of cellulose in the form of fibers, and the final 203 pages with the manufacture of synthetic fibers. An appendix, author's index, and subject index are included.—*Textile World.*

Polymolecularity of cellulose. H. A. Wannow. *Melliand Textilber. 30,* 519-22 (Nov. 1949); *in German.*

The present article describes the methods of determining the distribution of the chain lengths of polydispersed cellulose by fractionation by precipitation and solution, which together with analysis by ultracentrifugal dispersion form the chief methods applied for that purpose. A description is also given of how to prepare the distribution diagrams of the chain lengths from the measured data. It is shown with the aid of the fractionation results found in cotton decomposed

by oxidation that distribution in 8 fractions is sufficient to secure an exact distribution diagram in the present case.

Report on the relations between hygroscopic and dynamometric qualities of natural silk. W. von Rhein. *Melliand Textilber. 30,* 179-84 (May 1949) ; *in German.*

The cocoon filaments examined by the author in air-conditioned rooms with a relative atmospheric humidity of 31-90% at a temperature of 20°C showed a reduction of the breaking load of from 17.7 to 13.0 g and an increase of extension amounting to from 26.6 to 41.1% (the corresponding figures at 65% relative atmospheric humidity being 15.7 g and 33.9% respectively). The author ascribes deviations from the figures obtained by previous investigators partly to their having used textile structures that had been assembled, instead of filaments, and partly to the fact that they did not carry out their tests in an air conditioned room. The author states that real silk adapts its swelling condition to any change in the relative atmospheric humidity so speedily that its exposure in a hygrostat before carrying out the test is unable to compensate for the lack of an air-conditioned testing room.

Soaps and sulfonated soaps. S. G. Belgundi. *Indian Textile J. 59,* 1081, 1074 (Sept. 1949).

The use of soap and several synthetic detergents in the textile industry is discussed. The mechanism of wetting by soap is mentioned briefly as are some of its drawbacks. A wetting time test for Turkey Red Oil is described and the relationship between per cent SO_3 and concentration in gms per liter to obtain a wetting time of 80 seconds is shown.

Some applications of rheology in the textile industry. A. Banderet. *Bull. de l'Institut Textile No. 12,* 39-47 (June 1949) ; *No. 13,* 41-50 (Aug. 1949) ; *in French.*

The importance of rheological studies to the textile industry is emphasized, and a detailed explanation is given of recent work relating to the suitability of colloid solutions for spinning.

"Static" electricity in textile industries. A. P. Little. *Textile J. Australia 27,* 634-39, 668-75 (Sept. 1949).

A general discussion is given of static electricity in the textile field and such factors as atomic structures, the principles of static electrification which include pressure, temperature, contamination, humidity and speed of separation of electrons are considered. Also discussed are the practical aspects of static formation and its measurement. Static electricity in fibers and yarns and its effect in textile manufacture are noted. Finally, methods and equipment required for the elimination of static electricity are discussed. Some of the practical methods of eliminating static electricity include grounding, control of humidity, and use of electrical static eliminators. The uses to which static electricity can be put, which include electrostatic precipitation, electrostatic painting, and mineral separation are noted.

Study of the action of cellulose in alkali. J. Cyrot & R. Petit. *Bull. de L'Institut Textile No. 14,* 9-20 (Oct. 1949) ; *in French.*

When cellulose is immersed in aqueous caustic soda solution the concentration of the solution decreases. A certain quantity of sodium hydroxide penetrates into the cellulose. Various methods of calculation are used for estimating the quantity of sodium hydroxide, but the results obtained by these various methods do not seem to agree. Should the evaporation of the solution at high temperatures be taken into account, or a closed vessel be used, the differences disappear and the results of computation by the various methods agree. It can then be shown that the penetration of sodium hydroxide into the cellulose does not seem to depend on the temperature but on the concentration of the caustic soda solutions.

Supercontraction of wool and keratin fibers in phenol. H. Zahn. *Melliand Textilber. 30,* 517-19 (Nov. 1949) ; *in German.*

The supercontraction of wool and other related fibers has been found to be over 30% only by heating the fibers with high grade phenol. It has been shown that various compounds of coal tar added to pure phenol will diminish the supercontraction of horse hairs. Phenol of a low grade can be purified by separating the neutral oils and the higher boiling fraction. Contractions exceeding 30% may be realized by heating keratin fibers with phenol purified by this way.

Synthetic detergents in the textile industry. Foster D. Snell. *Rayon & Syn. Tex. 30,* 81-2 (Nov. 1949) ; 90-1 (Dec. 1949).

This discussion includes the following topics: nature of surface-active agents, alkyl aryl sulfonates, alkyl sulfonates, alkyl sulfates, sulfated monoglycerides, sulfated and sulfonated amides, nonionic amides, nonionic agents, and cation-active agents.